Environment CANADA Environnement
2022993I VOL 85- ISS 3 850300
EXC # 001
TD 171.5.C3 R43
REGIONAL PROGRAM REPORT (CANADA. EN
VIRONMENTAL PROTECTION SERVICE. PAC
OOFF

Environment Canada
Environnement Canada

Environmental Protection Service
Service de la protection de l'environnement

ENVIRONMENTAL PROTECTION SERVICE
ENVIRONMENT CANADA
PACIFIC REGION

ENVIRONMENTAL STUDIES IN ALICE ARM AND HASTINGS ARM, BRITISH COLUMBIA

PART IV

AMAX/KITSAULT MINE
- TRANSMISSOMETRY AND WATER CHEMISTRY
- JULY AND OCTOBER, 1982

Regional Program Report 85-03

By

D. Goyette
M. Thomas
C. Heim

March 1985

ABSTRACT

Shortly after startup (April 1981) of the Amax/Kitsault mine located in Alice Arm, British Columbia, a midwater turbidity plume appeared as a result of tailings discharge. During July and October 1982, a series of CTD-Transmissometer profiles and water samples for gravimetric and particulate trace metal analysis were obtained from Alice Arm as part of an ongoing study by EPS to monitor the distribution of the tailings effluent. The tailings plume persisted through 1982, although some response to outfall modifications, designed to control the saltwater dilution ratio, was evident.

Typical turbidity profiles outside the tailings plume consisted of high natural surface turbidity (low percent transmittance) followed by a sharp decline in turbidity to a depth of 30 metres. Below this depth, transmittance maintained levels in excess of 80% to the bottom. Within the tailings plume two distinct turbidity peaks (< 60% transmittance) were evident: The first peak ocurred at a depth between 80 and 120 metres and the second near the bottom with relatively high (approximately 80%) transmittance observed in between.

Generally, these two turbidity peaks were related to the tailings discharge. Higher turbidity or low percent transmittance levels were detected on the north shore of Alice Arm. The tidal cycle did not substantially affect the general pattern of the transmittance profiles and it was shown that the midwater turbidity plume quickly reacts to the amount of tailings discharge from the mine.

Particulate trace metal and gravimetric analysis on water samples showed higher concentrations near the outfall along with higher turbidity levels.

RÉSUMÉ

Peu de temps après la mise en exploitation (avril 1981) de la mine Amax/Kitsault située à Alice Arm (Colombie-Britannique), on a constaté la formation, entre deux eaux, d'un panache de turbidité résultant du déversement de résidus. En juillet et octobre 1982,dans le cadre d'une etude effectuée par le Service de la protection de l'environnement sur la répartition des effluents constitués de résidus, on a mesuré dans le bras Alice les paramètres CTD (conductivité, température, profondeur) et transmissomètre, et prélevé des échantillons d'eau en vue d'une analyse gravimétrique et de particules de métaux à l'état de traces. Le panache provoqué par les résidus a subsisté pendant toute l'année 1982, bien que les modifications apportées au déversement dans le but de contrôler le taux de dilution de l'eau salée aient donné des résultats prometteurs.

En dehors du panache de résidus les niveaux de turbidité typiques consistaient en un taux élevé de turbidité naturelle à la surface (faible pourcentage de transmittance) et d'une chute brutale de la turbidité jusqu'à une profondeur de 30 mètres. Au-delà de cette profondeur et jusqu'au fond, le coefficient de transmission atteignait des niveaux supérieurs à 80%. A l'intérieur du panache des résidus on a relevé deux taux de turbidité extrêmes distincts (< 60% coefficient de transmission), le premier à une profondeur située entre 80 et 120 mètres et le second près du fond. Entre les deux niveaux on a observé un coefficient de transmission relativement élevé (environ 80%).

En général, les deux taux extrêmes résultaient du déversement des résidus. On a relevé une turbidité élevée ou un faible coefficient de transmission le long de la rive nord du bras Alice. Le cycle des marées n'affectait pas de façon notable les résultats d'ensemble du coefficient de transmission et on a constaté que le niveau de turbidité du panache situé entre deux eaux variait rapidement selon la quantité des résidus déversés par la mine.

La détection des particules de métaux à l'état de traces et l'analyse gravimétrique des échantillons d'eau ont révélé de plus hautes concentrations à proximité du point de déversement ainsi que des taux plus élevés de turbidité.

TABLE OF CONTENTS

		Page
ABSTRACT		i
RÉSUMÉ		ii
TABLE OF CONTENTS		iii
	List of Tables	v
	List of Figures	vi
	List of Appendices	viii
	List of Plates	ix
SUMMARY		x
1.0	INTRODUCTION	1
2.0	MATERIALS AND METHODS	5
2.1	Field Measurements	5
2.2	Laboratory Analysis	9
2.2.1	Analysis of Water Samples	9
3.0	RESULTS AND DISCUSSION	11
3.1	July 1982	11
3.1.1	Turbidity	11
3.1.1.1	Typical Transmittance Profiles (Stations Q-20 and T-64)	11
3.1.1.2	Cross Inlet Comparisons	14
3.1.1.3	Q-20 Time Series Profiles	19
3.1.1.4	N-8 Time Series Profiles - Mill Shutdown	19
3.1.2	Water Analyses	24
3.1.2.1	Particulate Trace Metals	24
3.1.2.2	Gravimetric Analysis	25
3.2	October 1982	27
3.2.1	Turbidity	27

TABLE OF CONTENTS (Continued)

		Page
3.2.1.1	Typical Transmittance Profiles (Stations Q-20 and T-64)	27
3.2.1.2	Cross Inlet Comparisons	29
3.2.2	Water Analyses	29
3.2.2.1	Particulate Trace Metals	29
3.2.2.2	Gravimetric Analysis	29
4.0	GENERAL DISCUSSION	35
5.0	REFERENCES	36
6.0	ACKNOWLEDGEMENTS	38
7.0	APPENDICES	39
8.0	PLATE	268

LIST OF TABLES

Table		Page
1	ALICE ARM WATER CHEMISTRY ANALYSIS - JULY, 1982	26
2	PERCENT TRANSMITTANCE VERSES NON-FILTERABLE RESIDUE (NFR) - July, 1982	27
3	ALICE ARM WATER CHEMISTRY ANALYSIS - OCTOBER, 1982	33
4	PARTICULATE TRACE METAL CONCENTRATIONS - JULY AND OCTOBER, 1982	29

LIST OF FIGURES

Figure		Page
1	LOCATION MAP OF ALICE ARM AND HASTINGS ARM	2
2	ALICE ARM - KITSAULT MINE DRAINAGE	3
3	ALICE ARM SAMPLING STATIONS -	
	a. Grid System	6
	b. Typical Turbidity Profiles - July and October, 1982	7
	c. Cross Inlet Turbidity Profiles - July and October, 1982	7
	d. Turbidity Time Series Profiles - July, 1982	7
	e. Gravimetric and Particulate Trace Metal Analysis - July and October, 1982	7
4	CTD-TRANSMISSOMETER PROFILING SYSTEM	8
5	TYPICAL TURBIDITY PROFILE - OUTSIDE TAILINGS PLUME (Station T-64) - JULY 1982	12
6	TYPICAL TURBIDITY PROFILE - INSIDE TAILINGS PLUME (Station Q-20) - JULY 1982	12
7	CROSS INLET TURBIDITY PROFILES - JULY 1982	
a	STATIONS L-10, M-9 AND N-8	15
b	STATIONS N-14, O-13 AND P-12	16
c	STATIONS O-20, Q-20 AND S-20	17
d	STATIONS L-32, O-32 AND R-32	18
8	Q-20 TURBIDITY TIME SERIES PROFILES - JULY 1982	20

LIST OF FIGURES (Continued)

Figure		Page
9	N-8 TURBIDITY TIME SERIES PROFILES - MILL SHUTDOWN - JULY 1982	22
10	TYPICAL TURBIDITY PROFILE - OUTSIDE TAILINGS PLUME (Station T-64) - OCTOBER 1982	28
11	TYPICAL TURBIDITY PROFILE - INSIDE TAILINGS PLUME (Station Q-20) - OCTOBER 1982	28
12	CROSS INLET TURBIDITY PROFILES - OCTOBER	
a	STATIONS N-8, M-9 AND L-10	30
b	STATIONS P-12, O-13 AND N-14	31
c	STATIONS O-20, Q-20 AND S-20	32

LIST OF APPENDICES

Appendix		Page
IA	TRANSMITTANCE PROFILES - JULY 1982	40
IB	CTD-TRANSMITTANCE PROFILES - JULY 1982	105
II	TRANSMITTANCE PROFILES - OCTOBER 1982	168
III	CTD-TRANSMITTANCE DATA - JULY 1982	185
IV	CTD-TRANSMITTANCE DATA - OCTOBER 1982	247
V	TIDAL STATE THROUGHOUT SAMPLING PERIODS - JULY AND OCTOBER 1982	264
VI	TAILINGS DISCHARGE - JANUARY/DECEMBER 1982	266

LIST OF PLATES

Plate		Page
1	VISIBILITY FROM PISCES IV RELATED TO PERCENT TRANSMITTANCE - JULY 1982	268

SUMMARY

1. During the mine operation in July and October, 1982 a midwater tailings plume persisted at a depth between 80 and 120 metres. The upper surface of the plume occurred at a depth slightly below that found during the startup period indicating a possible reponse to changes in seawater dilution rates of the effluent.

2. The lateral extent of the tailings plume was variable but generally extended seaward from the outfall to approximately 4.0 km. Strongest evidence of the midwater tailings plume occurred along the north shore of Alice Arm.

3. Neither the lateral or vertical extent of the plume appeared to be appreciably affected by season or tidal state.

4. The spatial distribution of the midwater tailings plume is governed by two factors: water depth (i.e. greater than 80 metres) and distance from the outfall.

5. The tailings plume responds quickly to the operating status of the mine, dissipating shortly after shutdown and re-appearing within 48 hours after startup.

6. Elevated particulate trace metal concentrations within the midwater plume and its rapid disappearance following mine shutdown indicated that the plume is largely related to the tailings discharge. Maximum residue concentrations within the plume ranged from 104 to 128 mg/l in October and July 1982, respectively.

7. The exact proportion of the daily effluent discharge responsible for the midwater tailings plume and its environmental significance remains to be established. However, the midwater tailings plume has affected water column visibility with possible biological implications. More importantly, the presence of suspended tailings particles indicate dispersion and subsequent build-up of tailings deposits on the bottom at depths at which it occurs.

1.0 INTRODUCTION

Alice Arm is a small (16 km), narrow (1.4 km) and relatively deep (385 m) fjord located in northwest British Columbia, approximately 144 km north of the city of Prince Rupert (Figure 1). Situated near the head of Alice Arm is Amax of Canada Limited, Kitsault Mine (Figure 2) which began production on April 6, 1981. This open pit molybdenum mine was previously operated by B.C. Molybdenum Limited between October 1967 and April 1972. The mill capacity of the new operation increased to approximately 12,000 tonnes per day, double that of the previous operation. The Kitsault mine continued operation until October 1982, then shut down due to poor market demands for molybdenum.

The tailings effluent from the Kitsault mine was discharged directly into Alice Arm through a submerged pipeline which extends to a depth of 50 meters. The outfall terminus is located immediately off the southeastern shore of Alice Arm between Lime Creek and Roundy Creek (Figure 2).

The tailings discharge, or more specifically the mill process effluent, is governed by special federal regulations. The Alice Arm Tailings Deposit Regulations (AATDR), promulgated in April 1978, authorize the deposit of tailings into Alice Arm from the Kitsault mine. These regulations include a requirement that the tailings remain below 100 metres in Alice Arm except in the vicinity of the outfall where the depth requirement is 50 metres. In addition, tailings are to remain within Alice Arm, east of the north-south line at 120°39'45" which runs through Hans Point near the entrance to Alice Arm (Figure 2).

A number of investigations have been carried out by the Environmental Protection Service since startup of the Kitsault Mine. These included a series of CTD (Conductivity-Temperature-Depth) - transmittance profiles to delineate and monitor the horizontal and vertical distribution of the tailings plume in Alice Arm.

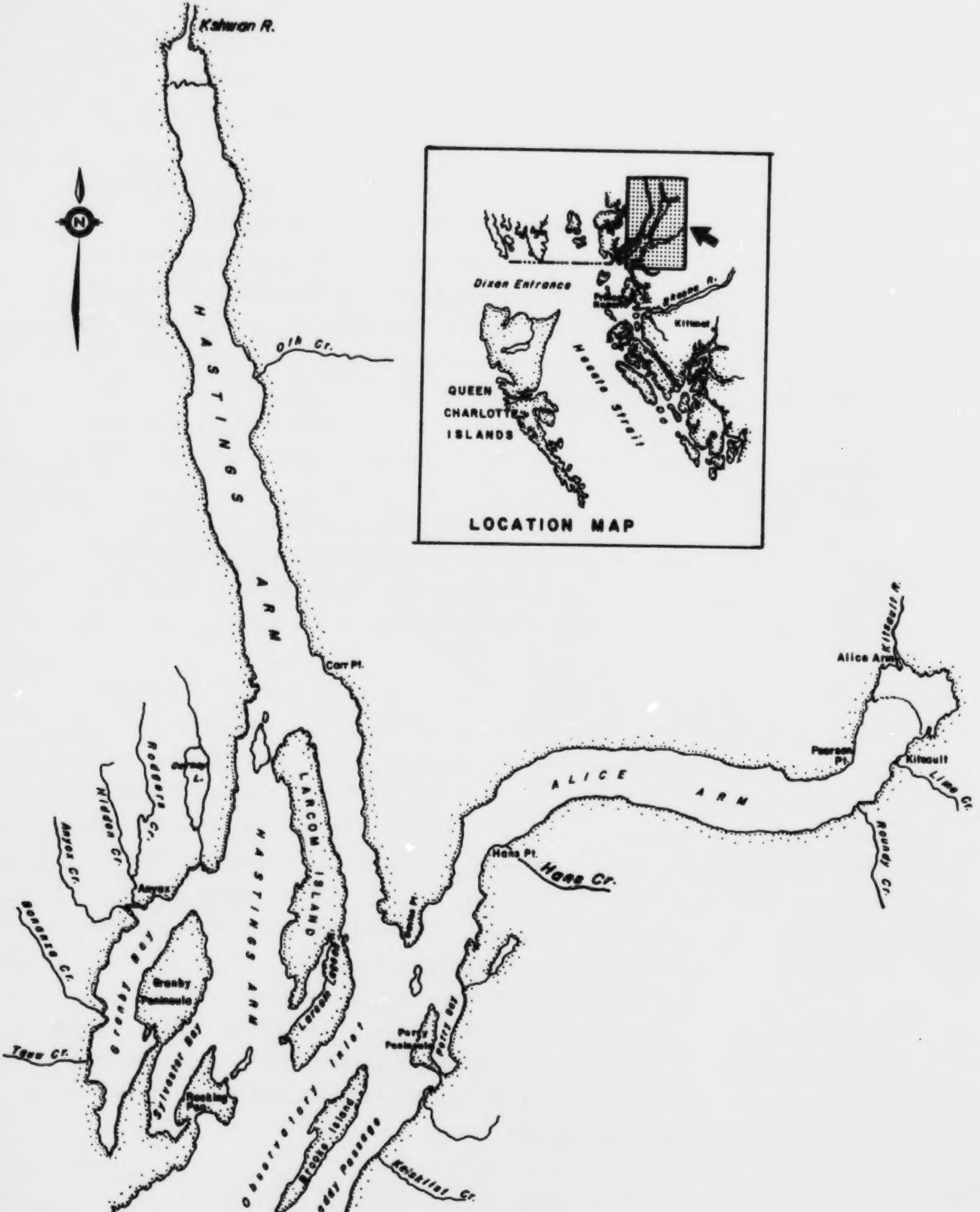

Kshwan R.
N
HASTINGS ARM
Olh Cr.
Dixon Entrance
Skeena R.
Kitimat
Hecate Strait
QUEEN CHARLOTTE ISLANDS
LOCATION MAP
Kitsault R.
Alice Arm
Carr Pt.
Pearson Pt.
Kitsault
ALICE ARM
Lime Cr.
Roundy Cr.
Hans Pt.
Hans Cr.
Rodgers Cr.
Hidden Cr.
Anyox Cr.
Anyox
Bonanza Cr.
LARCOM ISLAND
HASTINGS ARM
Granby Bay
Granby Peninsula
Tauw Cr.
Sylvester Bay
Larcom
Observatory Inlet
Perry Peninsula
Perry Bay
Brooke Island
Paddy Passage
Kshkitsl Cr.
0 1000 2000 3000 4000 5000
SCALE IN METRES

FIGURE I LOCATION MAP OF ALICE ARM AND HASTINGS ARM

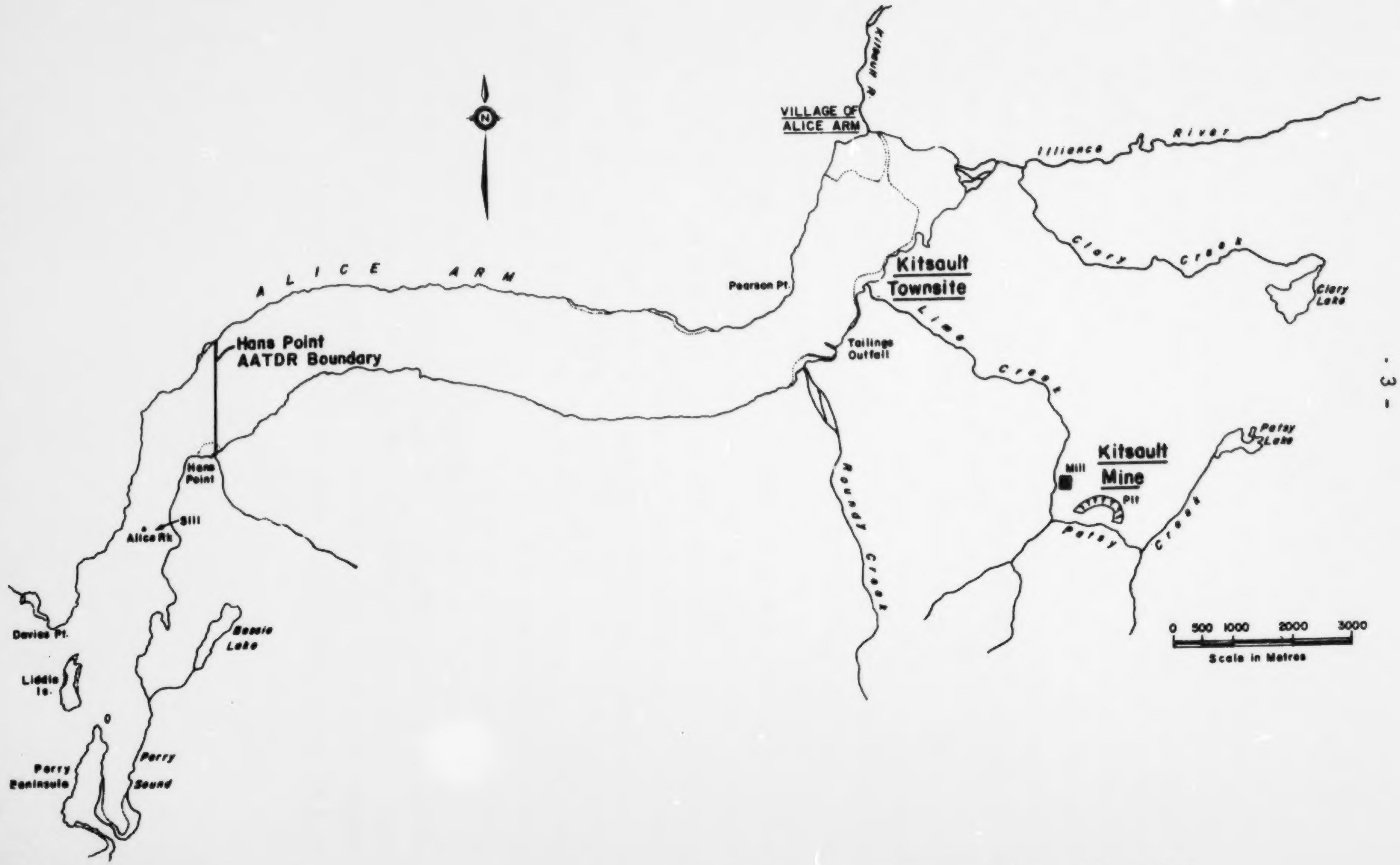

VILLAGE OF ALICE ARM
Kitsault R.
Illiance River
Clary Creek
Clary Lake
ALICE ARM
Pearson Pt.
Kitsault Townsite
Lime Creek
Tailings Outfall
Roundy Creek
Hans Point AATDR Boundary
Hans Point
Sill
Alice Rk.
Davies Pt.
Liddle Is.
Bessie Lake
Perry Sound
Perry Peninsula
Kitsault Mine
Mill
Pit
Patsy Creek
Patsy Lake
0 500 1000 2000 3000
Scale in Metres

FIGURE 2 LOCATION MAP — ALICE ARM AND KITSAULT MINE DRAINAGE AREA

Contrary to original expectations (Western Can. Hydraulic Ltd., 1978), a midwater tailings plume developed near the head of Alice Arm shortly after startup in 1981. Near the outfall, the upper surface of this turbidity plume was present at a depth of approximately 55 metres. In March 1982 a variable orifice was installed in the seawater intake to allow for a reduction in the dilution rate of the effluent with the hope of increasing density thus lowering the depth of the midwater tailings plume.

The tailings discharge from the Kitsault mine and resultant turbidity plume has been the centre of considerable controversy resulting in a number of investigations by various government agencies, Amax of Canada Ltd. and a scientific review panel (Burling et al, 1981 and 1983). The following report presents results obtained from transmissometer and water chemistry studies undertaken by the Environmental Protection Service in July and October, 1982. The primary purpose of these studies was to describe the distribution and behaviour of the midwater tailings plume in Alice Arm. The data can be used for future evaluation of the environmental significance of the tailings plume and its reponse to any future outfall modifications designed to lower the depth of the plume.

Similar studies were conducted by EPS in July and October, 1983 while the Kitsault mine was shut down to determine the relative contribution of natural silt material to the midwater turbidity plume, a question raised by Burling et al (1983). These results will be the subject of a future report (in preparation).

Additional sources of information pertinent to these data are reviews by Burling et al (1981 and 1983), Hinder and Goyette (1982), baseline studies; MacDonald et al (1984a and b) sediment trap studies; Rambold and Stucchi (1983) and Krauel (1981), oceanographic studies and Amax of Canada Limited, Annual Monitoring Reports (1982-1984).

2.0 MATERIALS AND METHODS

2.1 Field Measurements

CTD-Transmittance profiles were obtained in Alice Arm onboard the survey vessels Pandora II in July 1982 and the C.S.S. Vector in October 1982. Additional profiles were conducted from the submersible, Pisces IV, in conjunction with the July 1982 survey. The sampling stations were designated in accordance with the sampling grid shown in Figure 3a. The transects labelled A-A, B-B etc. represent the sampling sites used by Amax of Canada Ltd. for the Provincial Permit monitoring program. The stations used to illustrate typical turbidity profiles inside and outside the tailings plume, cross inlet and temporal changes as well as water chemistry data are shown in Figures 3b to 3e.

A Plessey CTD unit (9400 series) along with a Sea-Tech Inc. transmissometer was used for the water column profiling. The CTD-transmissometer unit was coupled with a Plessey 8500 deckunit, for a digital readout of data, a Nikko Model ND-790 stereo cassette tape recorder for recording and playback of data, a Hewlett Packard computer (HP model-9826) and printer (model 2671-G) for data processing, graphic display and storage. Upon return from the field the numerical data was summarized into specific depth interval tables and single or multiparameter plots were obtained after adjusting the air to surface depth readings to account for any variations detected in the depth sensor.

This profiling system is outlined in Figure 4 and for a more detailed description refer to Goyette and MacLeod (1984).

The CTD-Transmissometer probe was attached to the outside of the submersible, Pisces IV, during the July 1982 survey to examine the relationship between light transmittance and visual water clarity. Percent transmittance was read directly from the digital display unit inside the submersible and at the same time, visual observations were recorded. A description of the observations obtained from these dives has been reported by DeMill (1983).

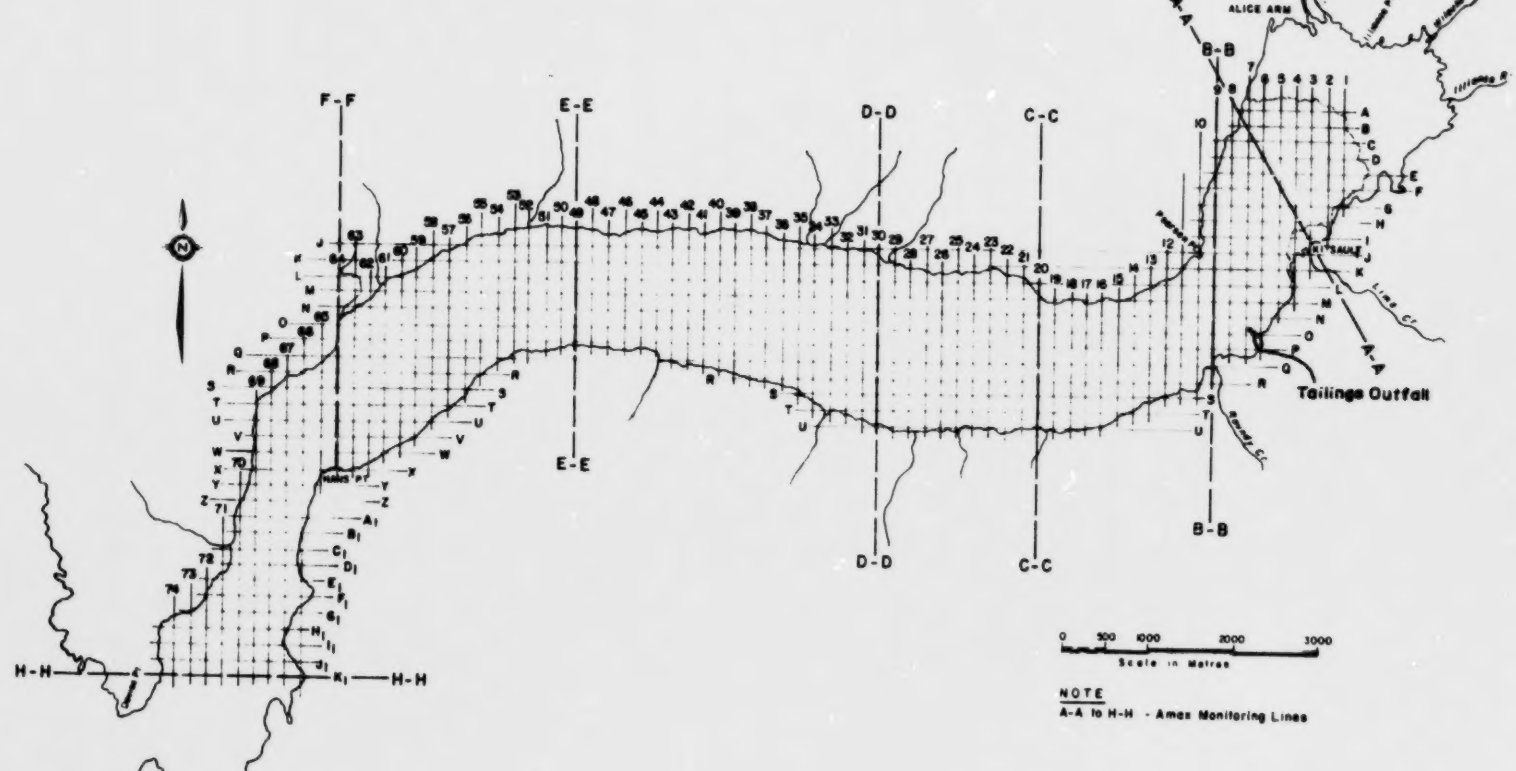
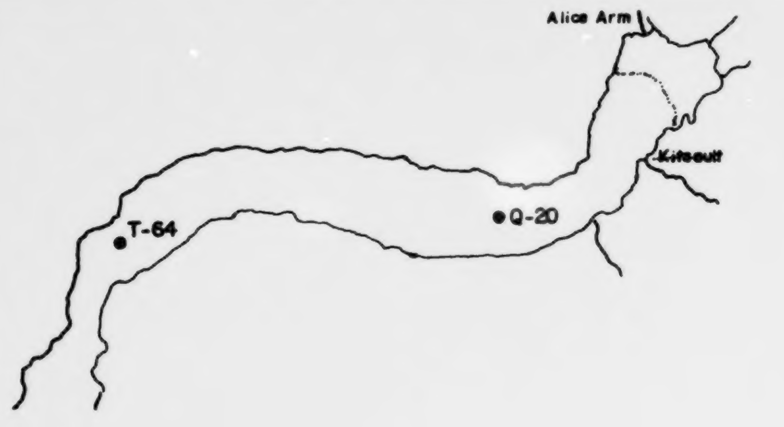
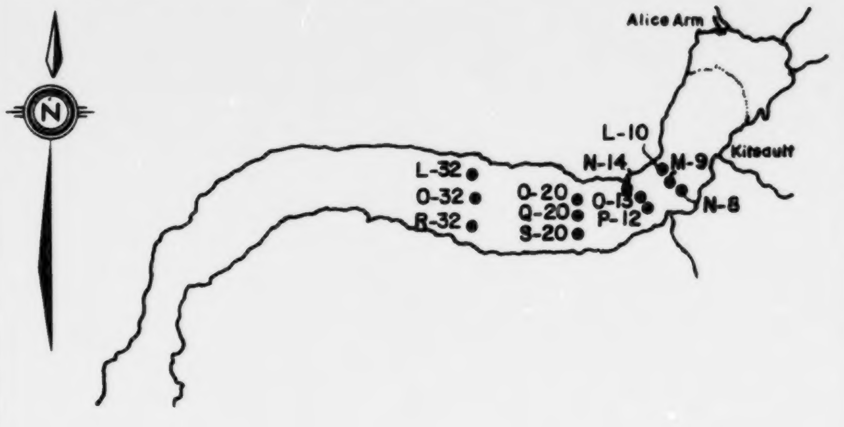

KITSAULT R.
ALICE ARM
A-A
B-B
C-C
D-D
E-E
F-F
H-H
Tailings Outfall
Lime Cr.
Roundy Cr.
KITSAULT
0 500 1000 2000 3000
Scale in Metres
NOTE
A-A to H-H - Amax Monitoring Lines
Perry Peninsula
Perry Bay

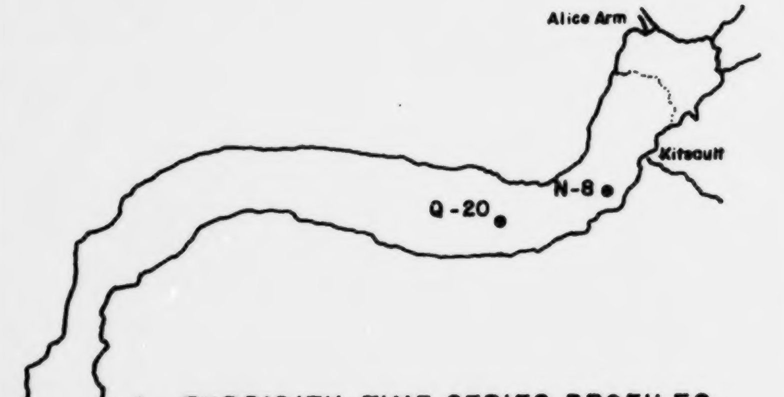
FIGURE 3a ALICE ARM SAMPLING STATIONS - GRID SYSTEM


Alice Arm
Kitsault
T-64
Q-20

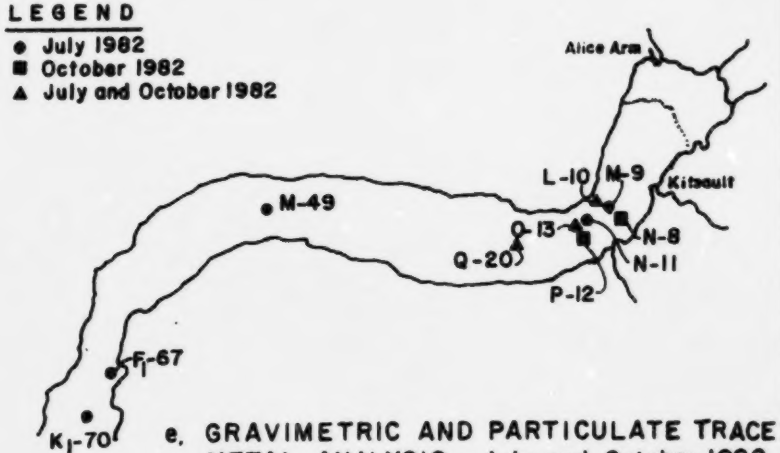
b. TYPICAL TURBIDITY PROFILES
July and October, 1982


N
Alice Arm
Kitsault
L-10
N-14
M-9
N-8
L-32
O-32
R-32
O-20
Q-20
S-20
O-13
P-12

c. CROSS INLET TURBIDITY PROFILES
July and October, 1982


Alice Arm
Kitsault
N-8
Q-20

d. TURBIDITY TIME SERIES PROFILES
July, 1982


LEGEND
● July 1982
■ October 1982
▲ July and October 1982
Alice Arm
Kitsault
L-10
M-9
N-8
N-11
O-13
Q-20
P-12
M-49
F1-67
K1-70

e. GRAVIMETRIC AND PARTICULATE TRACE METAL ANALYSIS - July and October, 1982

FIGURES 3b to 3e ALICE ARM SAMPLING STATIONS

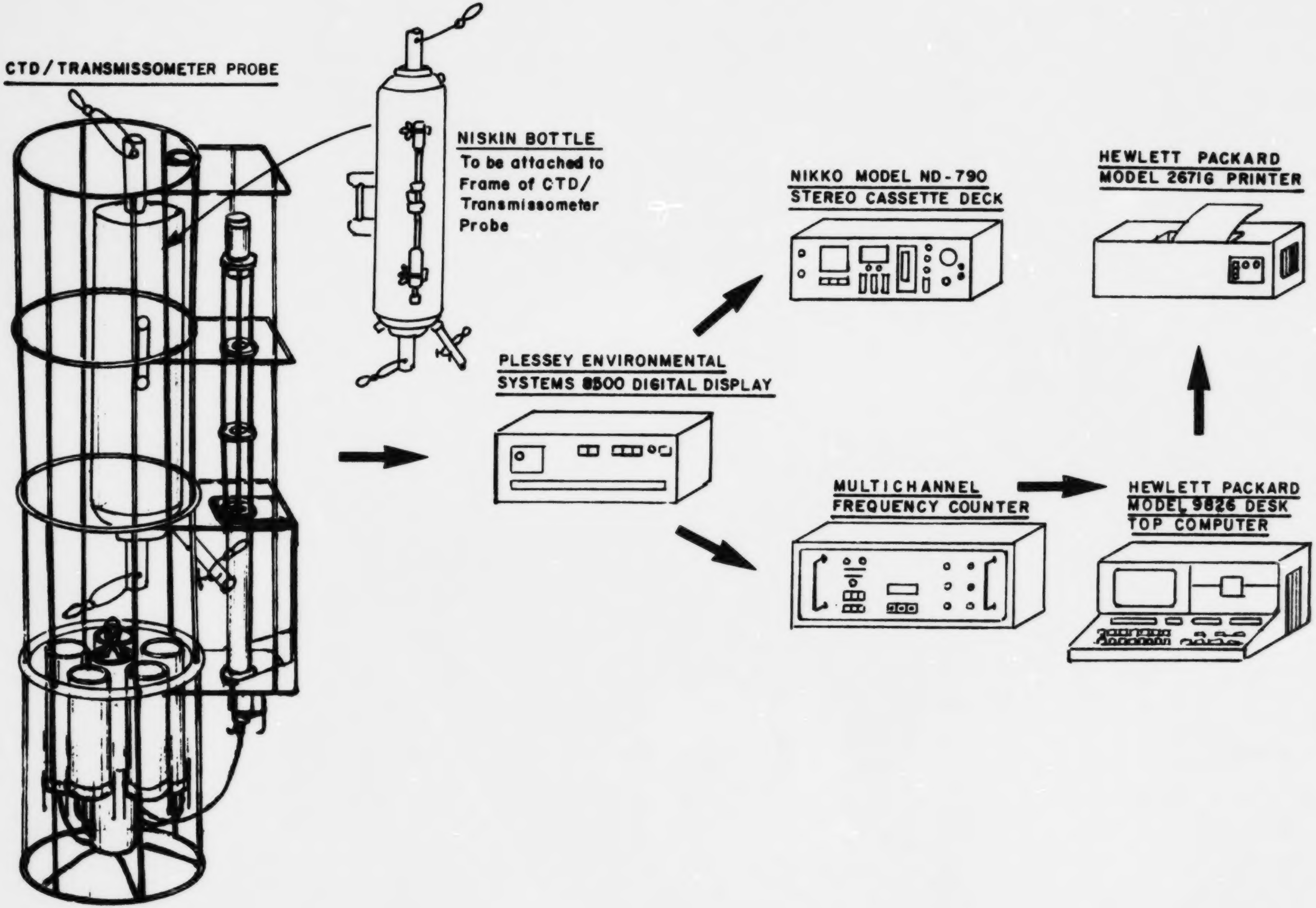

CTD/TRANSMISSOMETER PROBE
NISKIN BOTTLE
To be attached to Frame of CTD/ Transmissometer Probe
PLESSEY ENVIRONMENTAL SYSTEMS 8500 DIGITAL DISPLAY
NIKKO MODEL ND-790 STEREO CASSETTE DECK
MULTICHANNEL FREQUENCY COUNTER
HEWLETT PACKARD MODEL 9826 DESK TOP COMPUTER
HEWLETT PACKARD MODEL 2671G PRINTER

FIGURE 4 CTD-TRANSMISSOMETER PROFILING SYSTEM (From Goyette and Macleod, 1984)

Within the tailings turbidity field, 35 mm photographs of a "target board", attached to the submersible's manipulator arm positioned approximately 4 metres from the viewport, were taken over a range of turbidity levels and percent transmittance (27% to 90%) giving a qualitative comparison.

The relationship between percent transmittance and turbidity is inversely proportional, such that low transmittance levels indicate high turbidity. High concentrations of suspended particulate matter could either consist of tailings or material of natural origin or both.

Water samples taken in July and October, 1982 were obtained by mounting a 5 litre Nisken water bottle on the CTD-transmissometer probe. Conductivity, temperature, depth and percent transmittance were recorded by the computer at the instant a messenger sent down the cable tripped the water bottle.

The water samples were frozen in 2 litre acid washed plastic bottles and returned to the West Vancouver Laboratory for gravimetric and particulate trace metal analyses. The former analysis was broken down into non-filterable residue, NFR (total suspended particulate), fixed residue (inorganic fraction) and non-filterable volatile residue, NFVR (organic fraction).

2.2 Laboratory Analysis

2.2.1 Analysis of Water Samples. The procedure adopted for gravimetric and trace metal analyses on seawater samples was a modified version of that described by Swingle and Davidson (1979). A summary of this procedure follows: samples were thawed; volumes were measured and then filtered through Nucleopore filters (0.4 microns). Residue (particulates greater than 0.4 microns) was freeze-dried and weighed to determine the dry weight (NFR). The sample was then oxidized in a low temperature asher to determine the organic fraction (NFVR) and the inorganic fraction (Fixed Residue). Values for these three determinations were expressed in mg/l.

To determine the trace metal concentrations the ashed sample, containing metallic salts, was first dissolved in warm aqua regia, (a mixture of 3 parts concentrated hydrochloric acid to 1 part concentrated nitric acid) and then analyzed using a Jarrell Ash, Inductively Coupled Argon Plasma Optical Emission Spectrometer (ICAP). In instances where sample concentrations for Pb and Cd were below the detection limits of the ICAP, a FLA 100 graphite tube furnace and a Jarrell Ash 850 Atomic Absorption Spectrophotometer (A.A.S.) were used to determine the lower limits. Tests on blank Nucleopore filters showed that no residue remained following low temperature ashing and with the possible exception of chromium, the filters did not contribute to the trace metal concentrations detected. Standard Reference Material - 1643A (National Bureau of Standards) was analyzed during all gravimetric and trace metal analytical procedures.

3.0 RESULTS AND DISCUSSION

Transmittance profiles obtained from the July and October, 1982 surveys are presented in Appendices I and II, respectively. These profiles are arranged in order from stations located at the head of Alice Arm (near the mill outfall) to those near the mouth of the inlet. Numerical CTD-Transmittance data obtained from these surveys are provided in Appendices III and IV. Graphical illustration of the tidal cycles during the sampling periods and tailings discharge rates (tonnes/day) for 1982 are shown in Appendices V and VI, respectively. Visual observations in relation to percent transmittance are illustrated in Plate 1.

3.1 July 1982

3.1.1 Turbidity.

3.1.1.1 Typical transmittance profiles (Stations Q-20 and T-64). Typical transmittance profiles observed outside and inside the area of the tailings turbidity plume can best be illustrated using Stations T-64 and Q-20, respectively (Figures 5 and 6).

Station T-64 (Figure 5), which is similar to most stations outside the plume, shows a strong turbidity layer (approximately 40% transmittance) in the surface waters (0-10 metres). This is largely due to the silt from the Nass River which can exert a strong influence on turbidity levels throughout the area. Other sources of turbidity are the Kitsault River at the head of Alice Arm, Hans Creek on the south shore of Alice Arm near the mouth and the Kshwan River at the head of Hastings Arm (Figure 1). These rivers drain from extensive icefields.

Between 20 and 30 metres at Station T-64, transmittance levels increased sharply indicating a rapid decline in turbidity. Below 30 metres transmittance levels remained around 80% with very little variation. This condition persisted to the sea bed with no evidence of a bottom turbidity

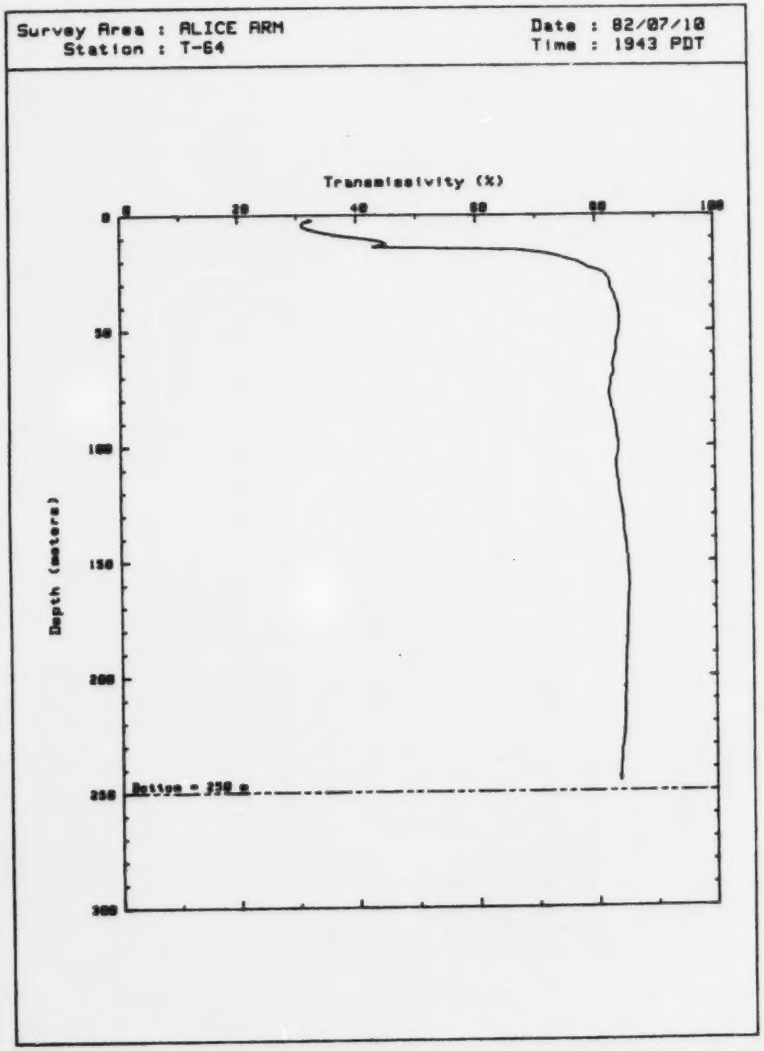


FIGURE 5 TYPICAL TURBIDITY PROFILE-OUTSIDE TAILINGS PLUME (STATION T-64)
July, 1982

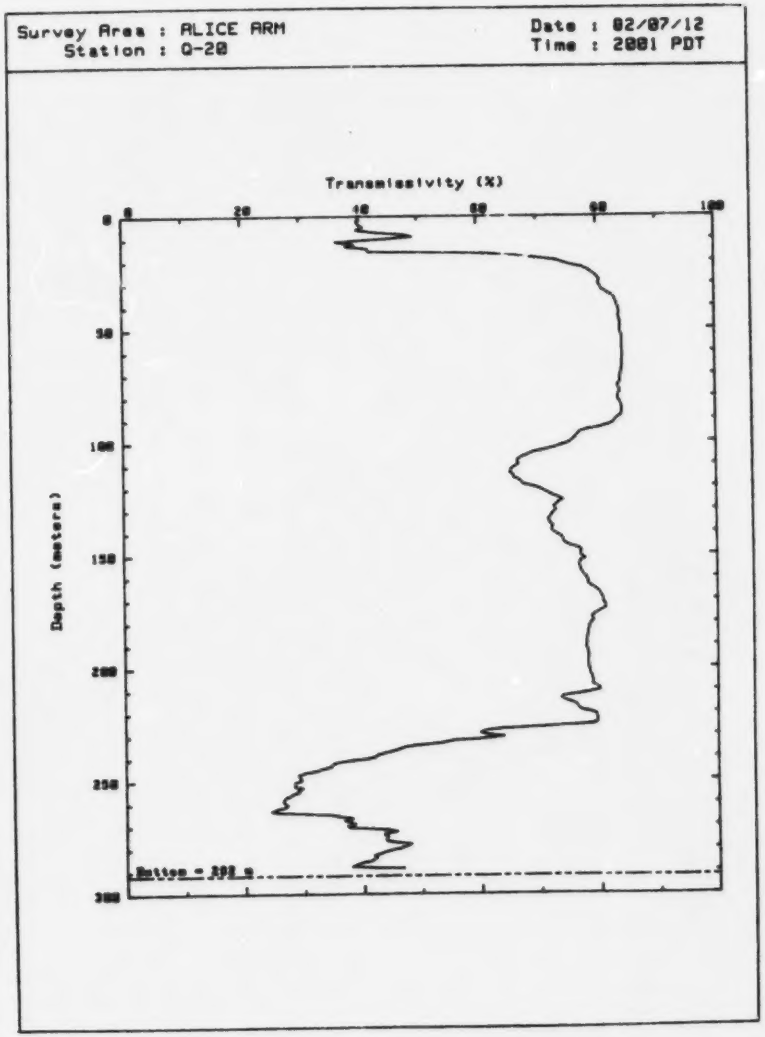


FIGURE 6 TYPICAL TURBIDITY PROFILE - INSIDE TAILINGS PLUME (STATION Q-20)
July, 1982

layer or nephloid layer. Station T-64 was typical of most stations sampled outside of Alice Arm as well as within Hastings Arm and Observatory Inlet.

Submersible observations made at the time these profiles were taken indicated that once outside the tailings plume and below the surface turbidity layer, visibility was excellent and extended as far as the submersible's lights penetrated (20-30 metres) (Goyette, 1982, personal observations). This condition persisted right to the bottom.

Within the tailings plume (eg. Station Q-20, Figure 6), transmittance profiles showed a surface turbidity layer (0-10 metres) followed by a rapid decline in turbidity between 20 and 30 metres, similar to that observed of the outside stations. Beyond 30 metres, transmittance levels increased to greater than 80%. This persisted to a depth of approximately 80 metres, at which point the upper surface of the midwater tailings plume was encountered. The upper surface of the tailings plume appeared to be somewhat lower than that observed during the early stages of start up and before outfall modifications were made to the seawater dilution rates. The depth during those time periods ranged between 55 and 60 metres (EPS 1982). In the deeper areas of Alice Arm (i.e. greater than 200 metres), transmittance profiles within the tailings plume area (e.g. Q-20, Figure 6) generally showed two distinct turbidity peaks. The first occurred between 90 and 120 metres and the second near the bottom, with relatively high transmittance levels of approximately 80% in between.

Cursory examination of the CTD data failed to reveal any definite reason for the midwater plume based on either temperature, salinity or sigma-T (water density), none of which showed any obvious changes in this region of the water column (Appendices Ib and III).

There are two features that often occur in the transmittance profiles which require explanation. One is a sharp "spike" which is present at a depth of 12 metres (Figures 5 and 6). From observations made during the Pisces IV dives with the CTD-Transmissometer probe mounted outside the sub, the "spike" occurred in clear water immediately below the surface turbidity layer (Goyette, 1982, personal observations). This is apparently due to the rapid change in water density at the pycnocline thereby affecting the optical properties of the water. This causes a response by the instrument and should not be interpreted as a turbidity peak.

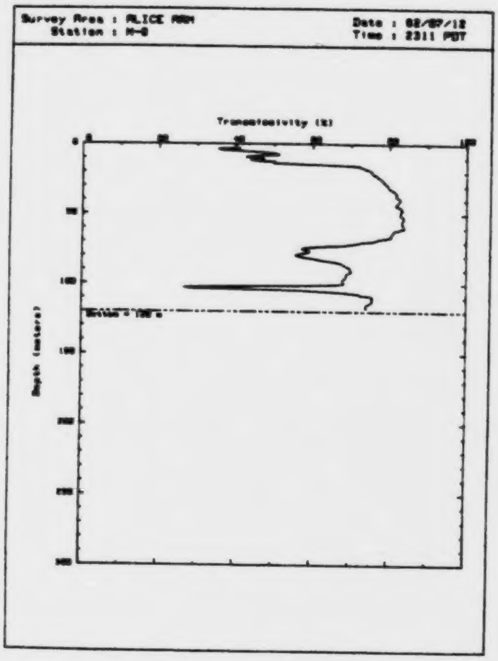
The other feature is a substantial decrease in turbidity which frequently occurred within a few metres from the bottom. This was even evident in the immediate area of the tailings outfall (Station M-9) which should be under the direct influence of the tailings effluent. This was confirmed by submersible observations where visibility went from near zero to several metres just before contacting the bottom (Goyette, 1982, personal observations).

Combining submersible observations with transmissometer profiles provided a unique opportunity to relate visual observations with instrumental readings. Results are shown in Plate 1. The lines of the target board began to lose clarity at approximately 60% transmittance and became indistinct around 49%. At 30% transmittance, the target board was not visible. During the course of the transmissometer surveys, it was apparent that the first indication of the midwater tailings plume occurred at approximately 60% transmittance.

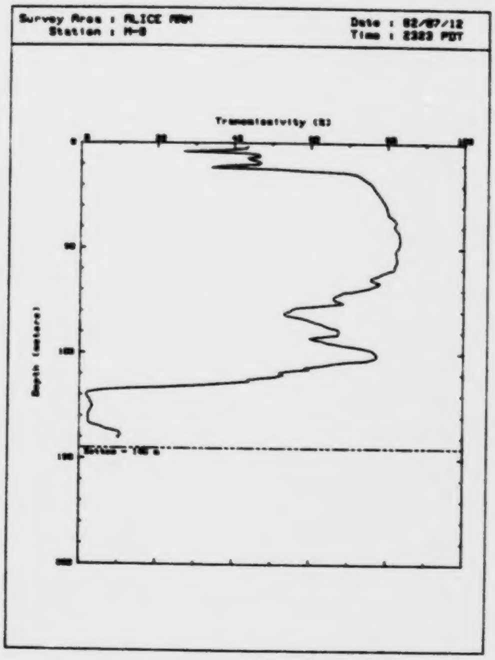
3.1.1.2 Cross inlet comparisons. Figures 7a to 7d show a series of cross inlet transects taken in July 1982. These transects extended from the outfall and seaward to 1.0, 2.5 and 4.5 km.

Generally, evidence of a midwater tailings plume occurred at all cross inlet stations with the exception of the two outer most stations along the centre channel (O-32) and south shore (R-32), approximately 4.5 km west of the outfall (Figure 7-d). The midwater plume was only slightly evident on the north side of this transect (L-32).

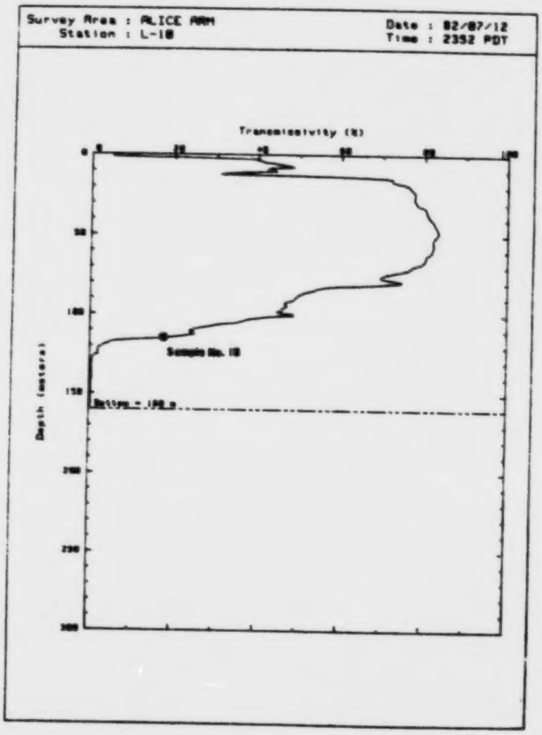
In the vicinity of the outfall (Stations N-8, M-9 and L-10), the upper surface of the turbidity plume was detected at approximately 60 metres and increased in intensity with increasing depth (Figure 7a).



STATION N-8



STATION M-9



STATION L-10

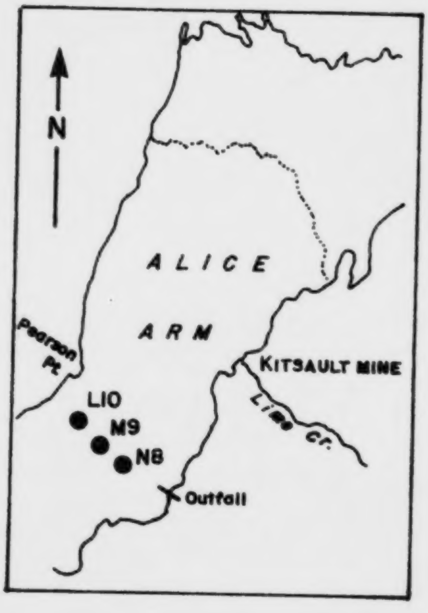
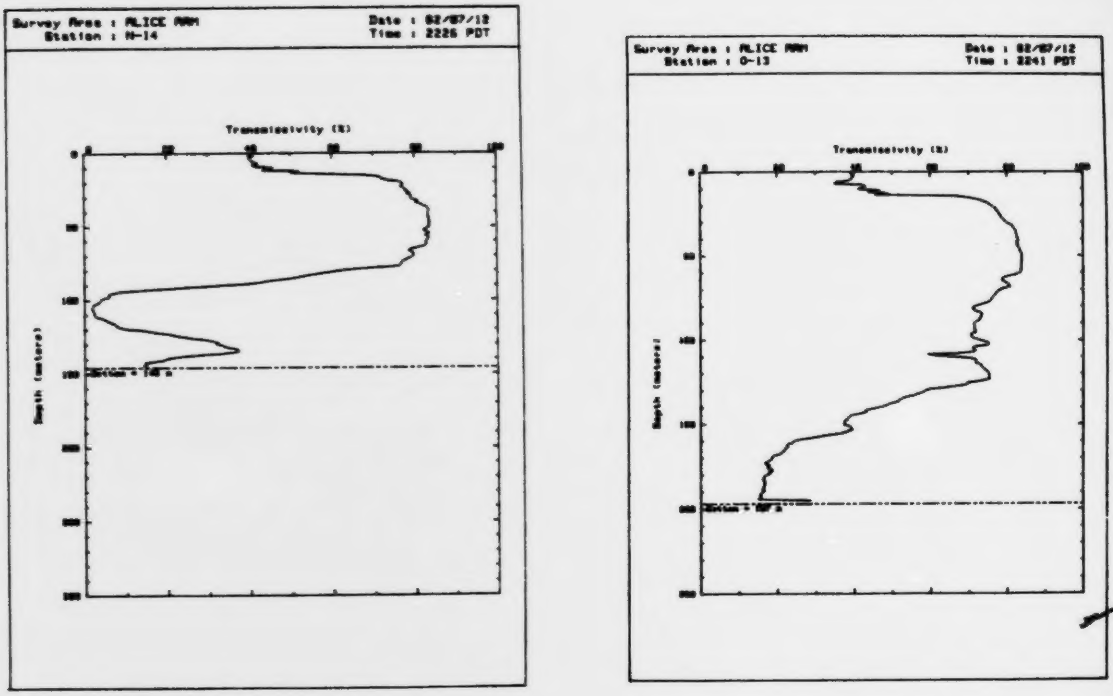
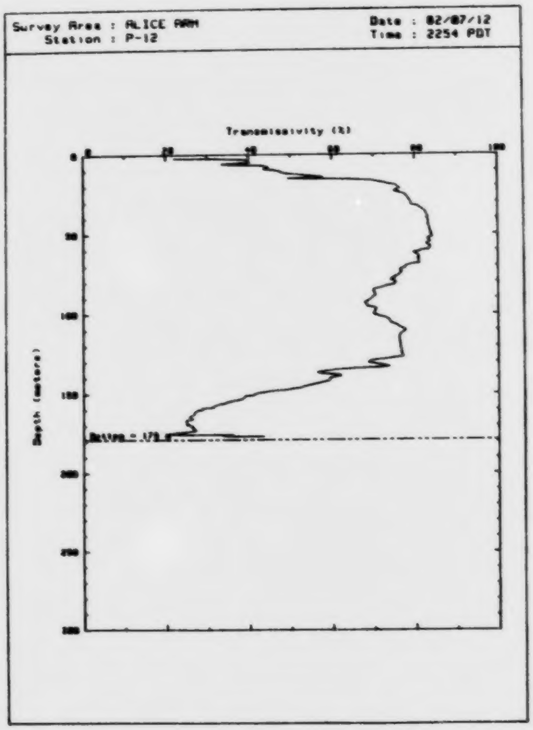

N
ALICE
ARM
Pearson Pt.
KITSAULT MINE
Lime Cr.
L10
M9
N8
Outfall

FIGURE 7a CROSS INLET TURBIDITY PROFILES - STATIONS L-10, M-9 AND N-8 - July 1982



STATION N-14

STATION O-13



STATION P-12

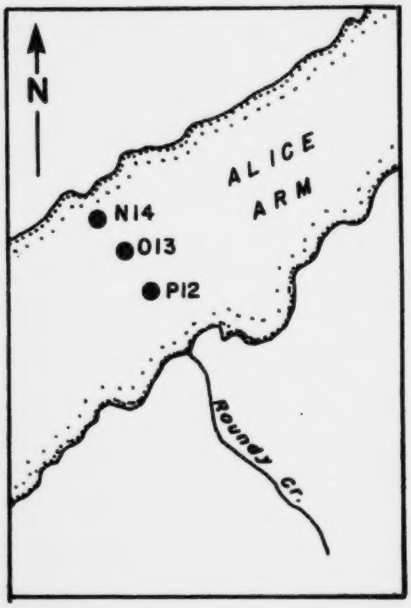
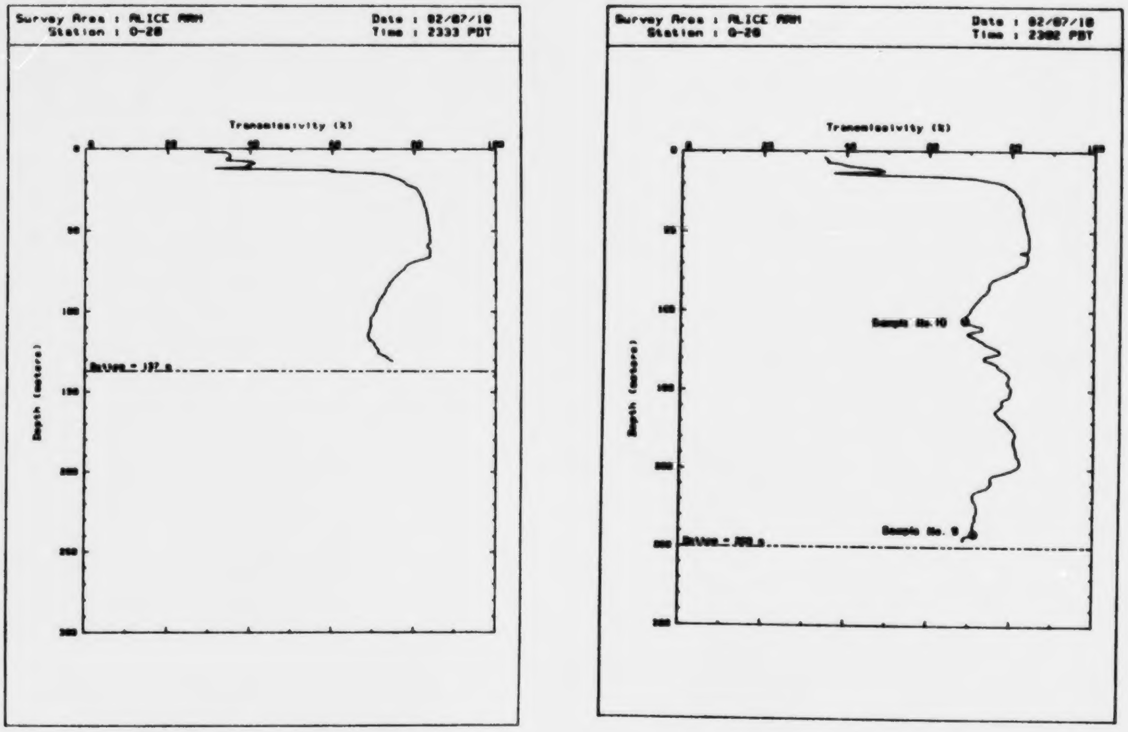
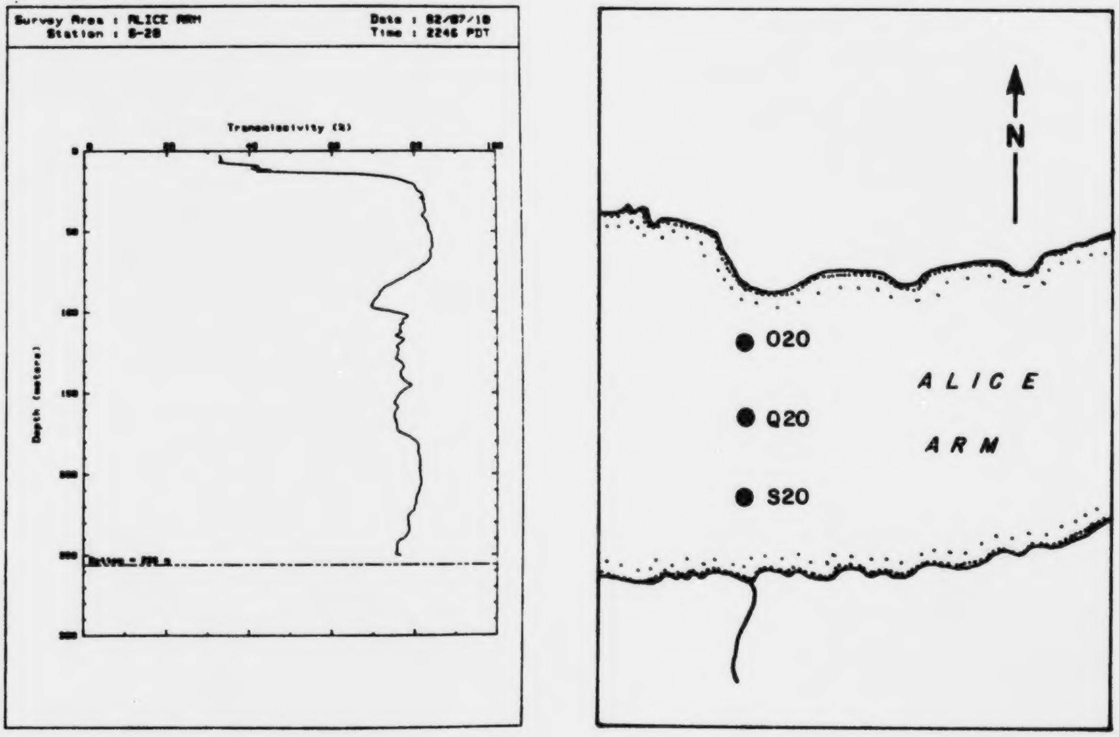

N
ALICE ARM
N14
O13
P12
Roundy Cr.

FIGURE 7b CROSS INLET TURBIDITY PROFILES - STATIONS N-14, O-13 AND P-12 - July 1982



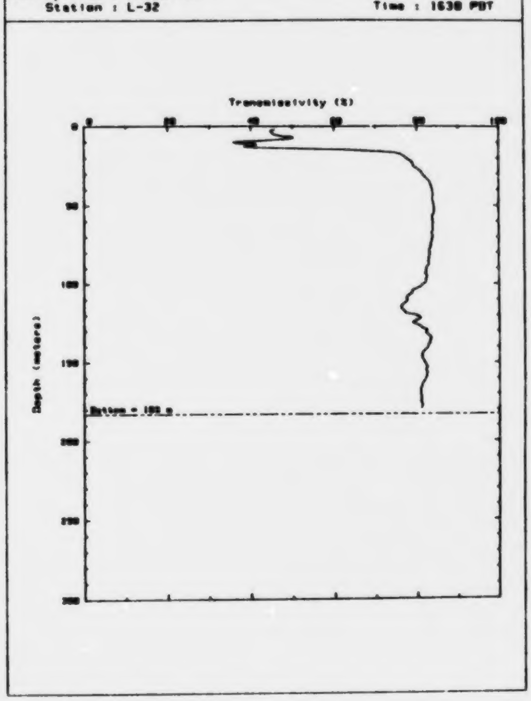
STATION O-20

STATION Q-20

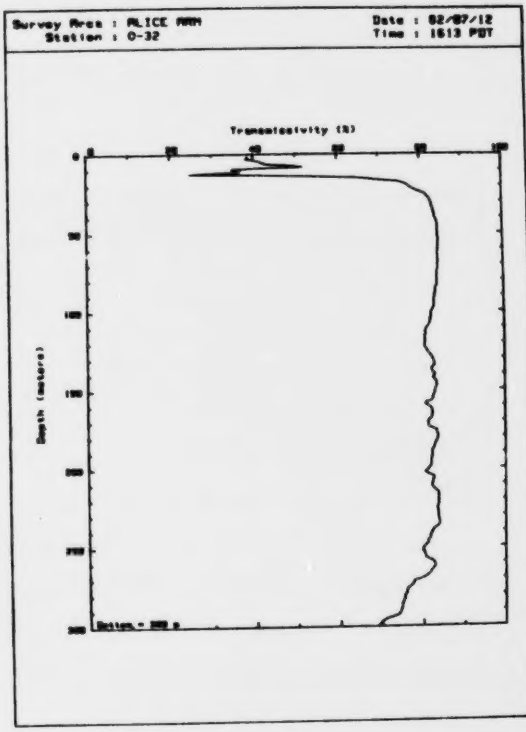


STATION S-20

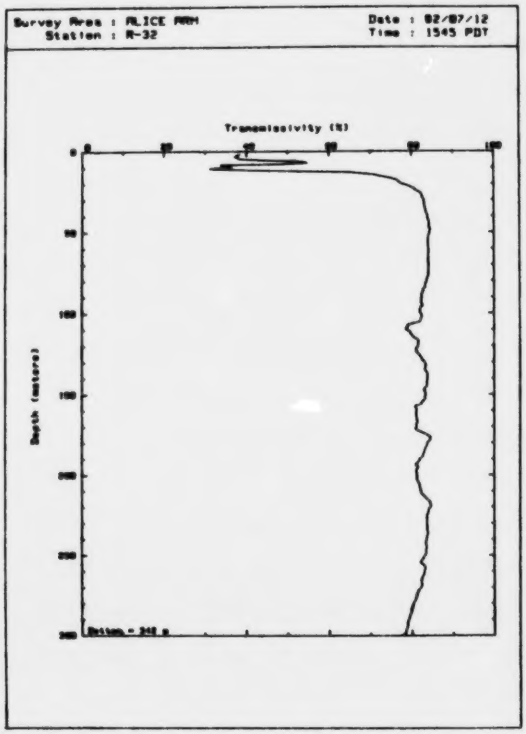
FIGURE 7c CROSS INLET TURBIDITY PROFILES - July 1982
STATIONS O-20, Q-20 AND S-20



STATION L-32



STATION O-32



STATION R-32

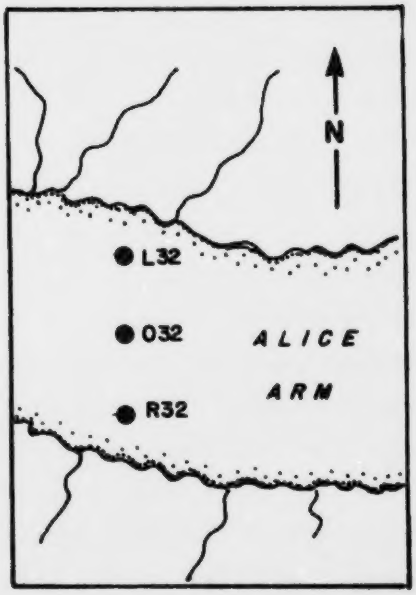

N
L32
O32
R32
ALICE
ARM

FIGURE 7d CROSS INLET TURBIDITY PROFILES - STATIONS L-32, O-32 AND R-32 , July 1982

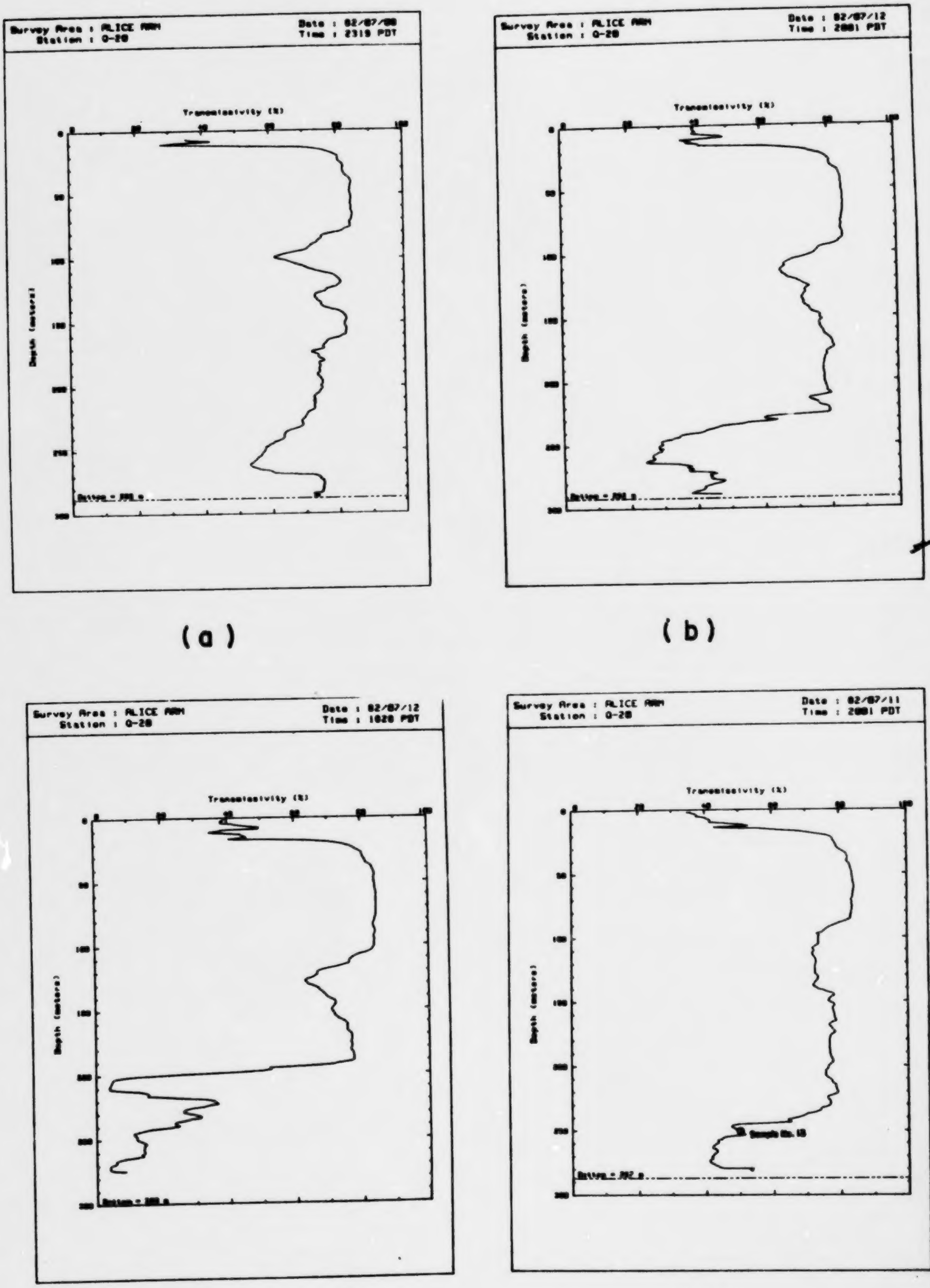
Highest turbidity levels were detected on the north shore of Alice Arm at Station L-10 (Figure 7a). This appeared to be a common feature for all the north shore stations and probably the result of the deflection of the tailings effluent off the north slope of the arm.

3.1.1.3 Q-20 time series profiles. Between July 8 and July 12, 1982, during operation of the Amax/Kitsault mine, several transmittance profiles were obtained at Station Q-20 at various stages of the tide to examine the stability of the midwater turbidity plume over time (Figure 8). The data suggests that the tidal state (Appendix V) does not substantially affect the general pattern of transmittance profiles. Therefore, the turbidity plume in general is relatively stable within the water column over a reasonable period of time and not affected to any great extent by the tide.

3.1.1.4 N-8 time series profiles - mill shutdown. The mine was shutdown at approximately 2400 hours on July 8th to 2400 hours on July 10th. This allowed an opportunity to observe the behaviour of the turbidity plume before, during and after mill shutdown. A series of transmittance profiles were obtained during this time period at Station N-8 which are illustrated in Figures 9a to 9h.

Prior to shutdown (July 8th), elevated turbidity (less than 35% transmittance) was detected at a depth of approximately 90 metres (Figures 9a and 9b). Following mill shutdown (July 9th), three transmittance profiles were obtained at Station N-8 (Figures 9c, 9d and 9c). Results indicated a marked decrease in turbidity with an increase from < 35% to 65% transmittance at the lower depths within an hour after shutdown. This rapid response in the turbidity plume could be the result of either particles settling out or tidal dilution or a combination of both.

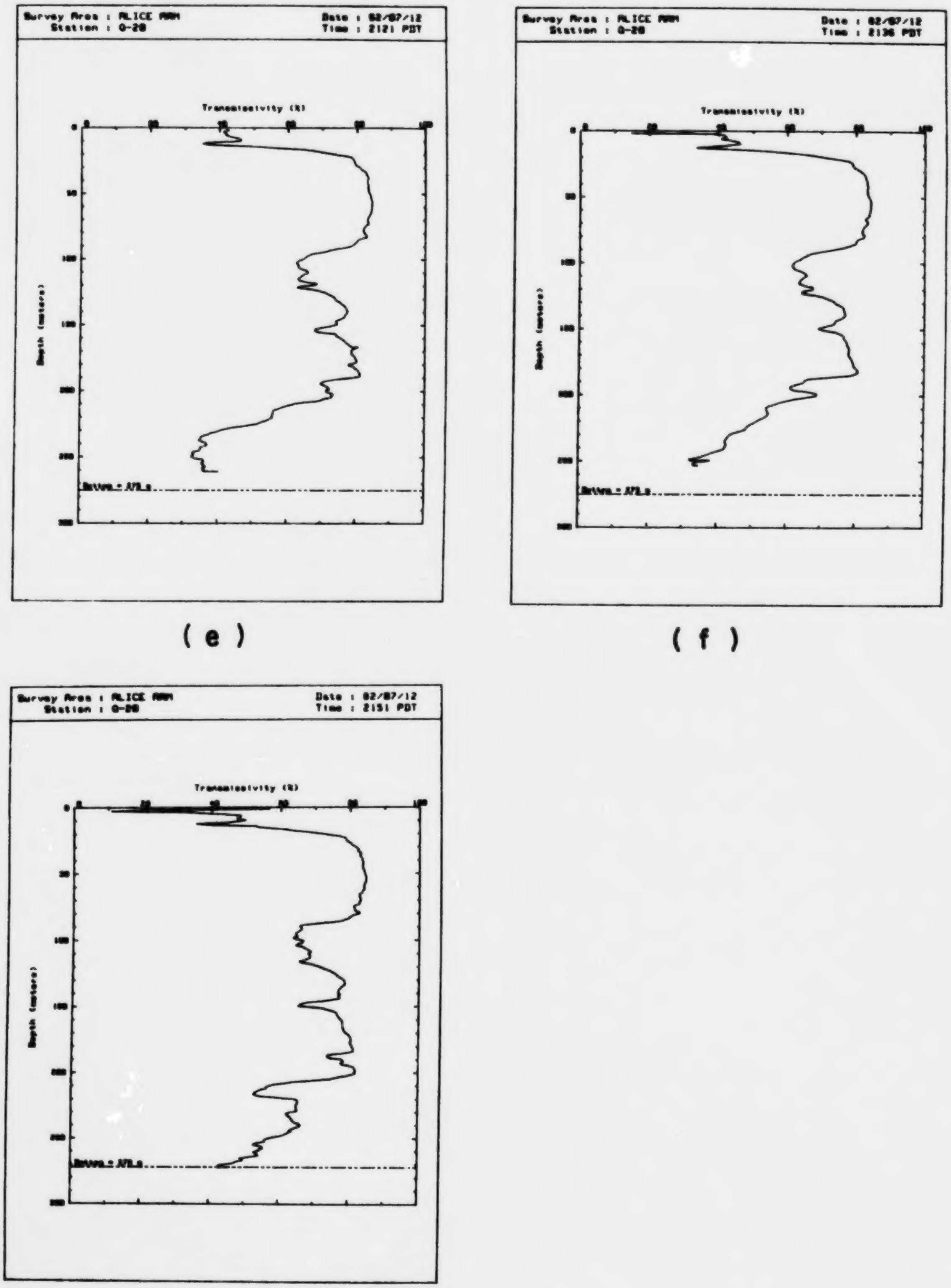
During this time, tidal conditions were approximately at the mid-point of flooding (Appendix V). Lower than normal daily production rates from Kitsault mine also occurred the day prior to and following the



(a) (b)

(c) (d)

FIGURE 8 TURBIDITY TIME SERIES PROFILES - STATION Q-20 July 1982

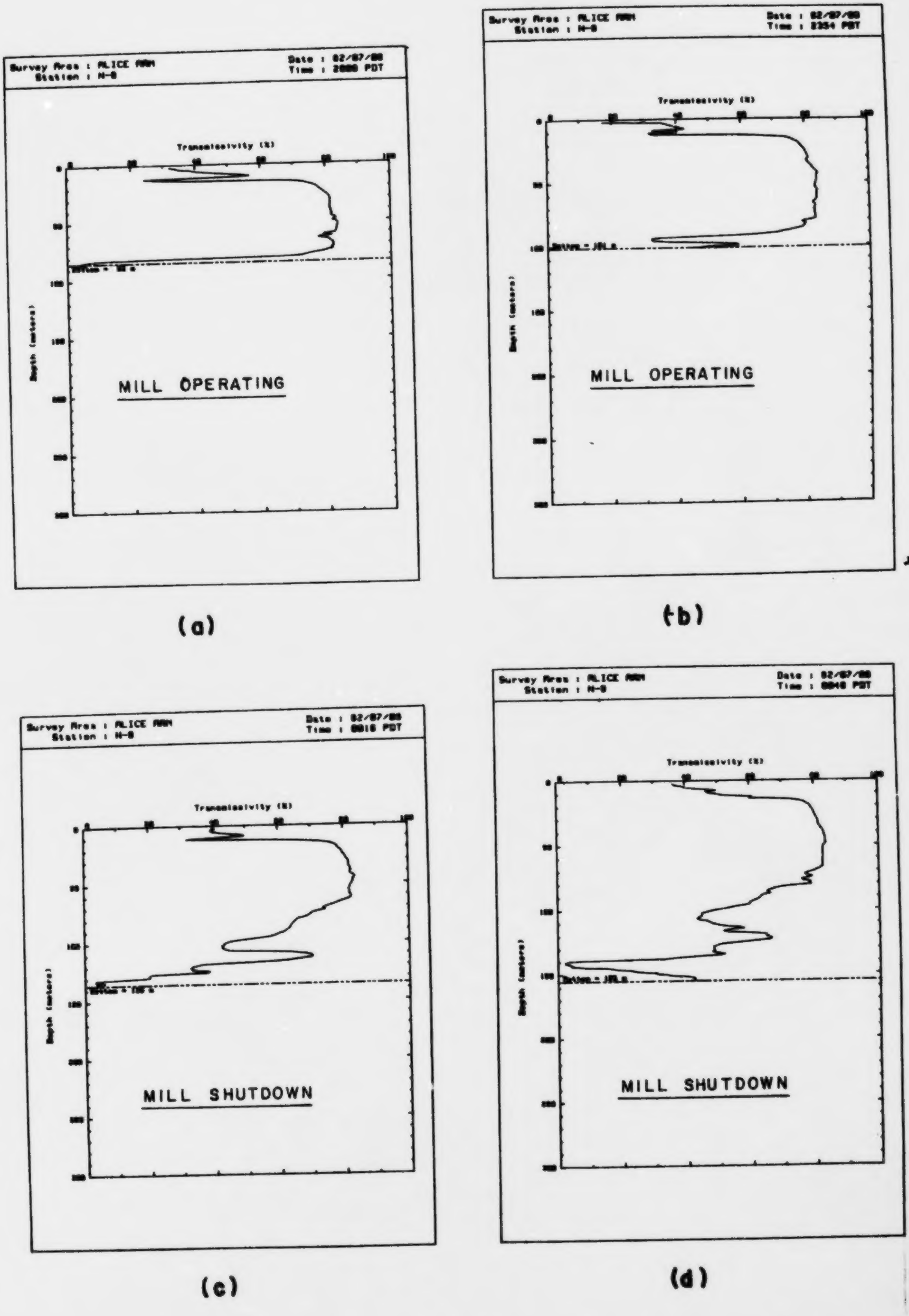


(e)

(f)

(g)

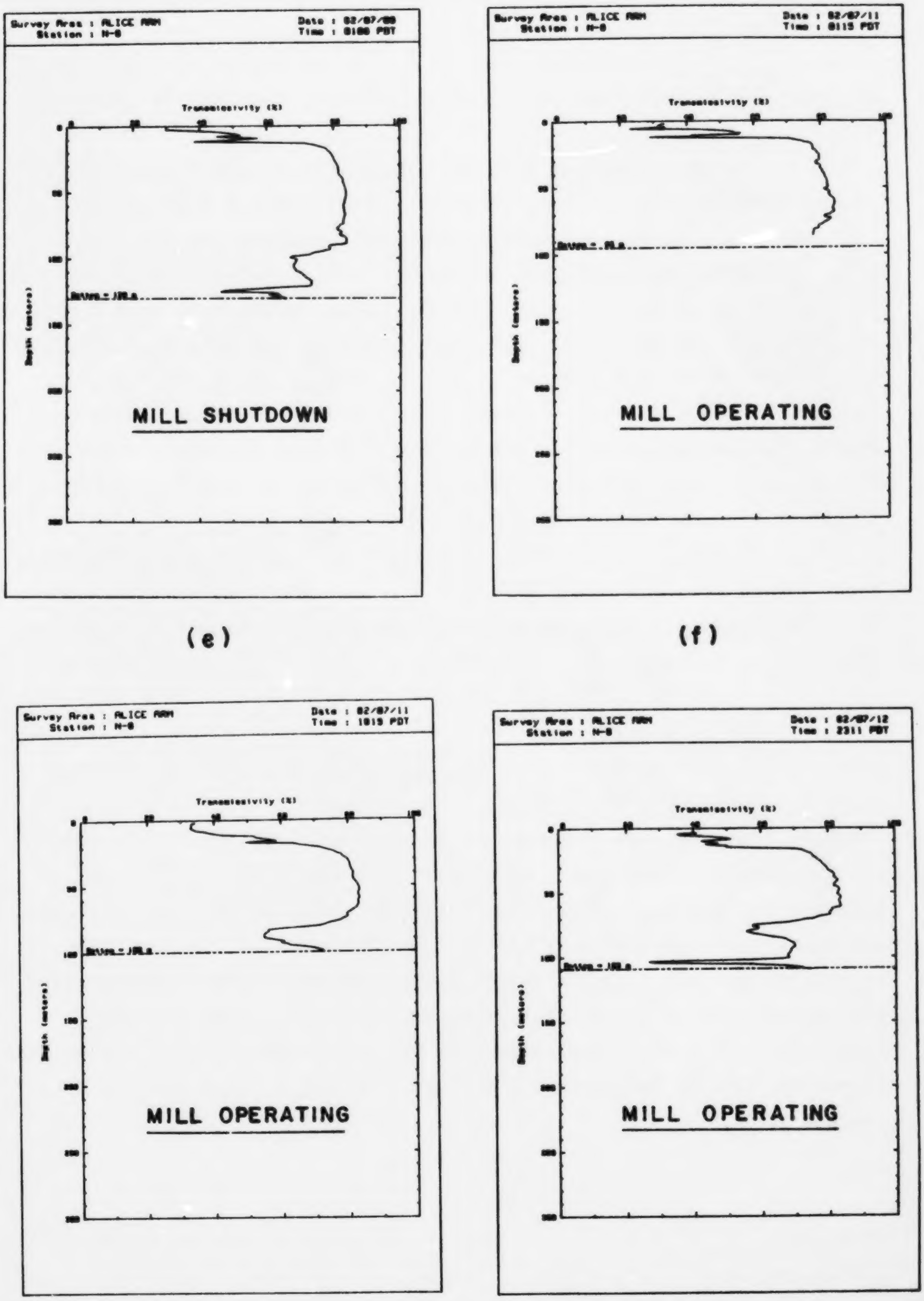
FIGURE 8 (continued)



(a) (b)

(c) (d)

FIGURE 9 TURBIDITY TIME SERIES PROFILES - STATION N-8 MILL SHUTDOWN - July 1982



(e)

(f)

(g)

(h)

FIGURE 9 (continued)

shutdown period 8366.1 and 3865.2 tonnes per day, respectively (Appendix VI).

The mill commenced discharge operations at 2400 hours on July 10th. Transmittance profiling resumed at Station N-8 at 0115 and 1819 hours on July 11th and was repeated again at 2311 hours on July 12th (Figures 9f, 9g and 9h, respectively). A midwater turbidity plume was not observed up to 85 minutes after startup, however 17 hours later a strong turbidity plume developed at approximately the same depth that was present prior to shutdown (85-95 metres). On July 12th, 48 hours after startup, the typical two-peak turbidity profile was detected; maximum turbidity levels occurred at 80 and 105 metres (respective transmittance levels were 55% and 25%). This two-peak turbidity profile was similar to previous transmittance profiles obtained during mill operation.

Clearly, the turbidity plume reacts very quickly to mill production, taking approximately 1 hour to dissipate once production has ceased and approximately 48 hours to return to its original characteristics once discharge is resumed.

3.1.2 Water Analyses.

3.1.2.1 Particulate trace metals. Particulate trace metal data obtained from these surveys serve to indicate the relationship between station location and patterns associated with the tailings discharge. However, the amount of residue obtained from the water samples for trace metal analysis was relatively small. When dealing with such small amounts of residue any analytical variation tends to be magnified. Consequently, the values obtained may not represent absolute metal concentrations. Particular attention should be paid to the size of the dilution factor, the higher the factor, the lower the precision of a given element's concentration.

The factor is calculated by dividing the final digest volume (usually 10 ml) by the mass of material (g) retained on the filter and then used to convert metal digest solution concentrations (ug/ml) to particulate levels (ug/g). As the amount of material retained on the filter becomes smaller, the factor becomes larger. At some point the factor becomes so large (> 1500) that very small changes in solution concentrations, after being multiplied by this factor result in large variations in final results. In essence, the data becomes less precise.

The results from the particulate trace metal analysis conducted on water samples taken in July 1982 are shown in Table 1. An increase in particulate copper, lead, zinc, cadmium and molybdenum concentrations was observed as the outfall was approached (Stations K1-70 to M-9). Background levels of these trace metals at Stations K1-70, F1-67 and M-49 ranged from < 6-< 10 ug/g, 50-80 ug/g, 163-218 ug/g, < 3-< 5 ug/g and 9-20 ug/g, respectively. Closer to the outfall, at stations Q-20, O-13, N-11, L-10 and M-9, higher levels of copper (< 3-25.1 ug/g), lead (100-314 ug/g), zinc (167-539 ug/g), cadmium (< 4.0-10.7 ug/g) and molybdenum (< 30.0- -130.0 ug/g) were detected. The midwater tailings plume, located at a depth of 80 metres, was also evident at these stations (Appendix I), indicating that higher particulate trace metal concentrations are associated with higher turbidity levels and the tailings plume. The highest concentrations of copper (25.1 ug/g), lead (314 ug/g), zinc (539 ug/g) and cadmium (0.7 ug/g) were found at Station M-9, which is located at the centre channel off the Kitsault outfall (Figure 2).

3.1.2.2 Gravimetric analysis. A summary of the gravimetric (residue) analysis on water samples collected in July 1982 is provided in Table 1. The maximum non-filterable residue (NFR) level (128 mg/l) was detected at Station L-10, which is located on the north shore of Alice Arm near the Kitsault mine outfall. Transmittance levels at this station were less than 1%. Outside the influence of the turbidity plume, lower NFR levels were

ABLE 1 ALICE ARM WATER CHEMISTRY ANALYSIS - JULY, 1982

STATION	PDT 1982 JULY	DEPTH (m)	% TRANS (25 cm)	NFR (mg/1)	FIXED RESIDUE (mg/1)	NFVR (mg/1)	FACTOR	TRACE METALS (ug/g)									
								Cu	Pb	Zn	Cd	Mo	Cr	As	% Fe	Al	Mn
M-9	2031 8	106	71.8	1.9	1.8	0.1	885.0	< 4.0	140.0	292.0	5.0	58.0	36.0	< 40.0	1.45	5630	722.0
N-11	2132 8	107	38.6	9.9	9.9	0.0	160.0	21.6	151.0	294.0	5.1	110.0	17.9	22.0	1.72	5680	637.0
N-11	2132 8	84	59.1	2.6	2.7	0.0	617.0	< 3.0	250.0	374.0	7.0	130.0	37.0	< 30.0	1.92	7250	1090.0
N-11	2132 8	54	84.7	0.3	0.1	0.1	6250.0	<30.0	200.0	400.0	<10.0	<30.0	250.0	<300.0	2.71	15500	2670.0
0-13	2300 8	90	66.4	2.6	2.5	0.1	645.0	< 3.0	180.0	333.0	6.0	94.0	36.0	< 30.0	1.66	6790	846.0
K_1-70	1836 10	51	80.7	0.7	0.6	0.1	2330.0	<10.0	80.0	218.0	< 5.0	20.0	110.0	<100.0	1.42	9000	1620.0
F_1-67	1867 10	30	80.9	1.4	1.3	0.1	1280.0	< 6.0	50.0	209.0	< 3.0	9.0	70.0	< 60.0	1.01	6610	1010.0
M-49	2022 10	288	80.7	1.2	1.1	0.1	1670.0	< 8.0	70.0	163.0	< 3.0	16.0	74.0	< 80.0	0.88	4810	3470.0
Q-20	2302 10	241	73.8	3.0	2.8	0.2	1140.0	< 6.0	120.0	192.0	4.0	37.0	53.0	< 60.0	0.82	4390	8630.0
Q-20	2302 10	106	72.8	1.3	0.8	0.5	1430.0	< 7.0	130.0	253.0	3.0	76.0	61.0	< 70.0	1.24	6010	864.0
M-9	0068 11	97	71.6	1.1	0.9	0.2	1750.0	< 9.0	190.0	539.0	< 4.0	93.0	83.0	< 90.0	1.78	8210	1220.0
M-9	1829 11	127	24.4	27.2	26.9	0.3	70.2	25.1	314.0	427.0	10.7	86.0	12.4	< 4.0	1.43	2940	957.0
Q-20	2001 11	262	68.7	2.9	2.8	0.0	641.0	< 3.0	100.0	167.0	1.0	41.0	25.0	< 30.0	0.88	3860	988.0
M-9	2323 12	138	46.4	19.5	19.4	0.2	96.2	24.9	183.0	326.0	6.6	87.0	15.6	< 5.0	1.64	3930	668.0
L-10	2352 12	115	0.8	128.0	128.0	0.0	14.4	< 4.0	230.0	355.0	6.0	110.0	12.0	< 40.0	2.02	4310	822.0

detected (NFR levels ranged from 0.7 mg/l at Station K1-70 to 1.4 mg/l at Station F1-70).

Generally, an inverse relationship between NFR levels and percent transmittance was observed and is summarized in the following table:

TABLE 2 PERCENT TRANSMITTANCE VERSUS NONFILTERABLE RESIDUE (NFR) - July, 1982

% TRANSMITTANCE	NFR (mg/l)
> 80	< 1.5
70 - 80	1.0 - 3.0
60 - 80	2.0 - 3.0
20 - 60	10 - 20
< 1	128

3.2 October - 1982

3.2.1 Turbidity.

3.2.1.1 Typical transmittance profiles (Stations Q-20 and T-64). Profiles obtained from the same two stations sampled in July 1982 (T-64 outside the tailings plume and Q-20 inside the plume) and resampled in October 1982 are shown in Figures 10 and 11, respectively.

Comparing the July and October profiles at Station T-64, transmittance levels were generally similar, with the exception of higher surface turbidity in October. This most likely resulted from higher surface runoff.

At Station Q-20, within the tailings plume, the transmittance pattern was also similar to the July profiles taken in the same location. Transmittance maintained levels greater than 80% in the upper water column (10-80 metres). The upper layer of the midwater turbidity plume was evident at approximately 80 metres and continued to a depth of 100 metres. Sharp turbidity spikes (low percent transmittance) occurred between 100

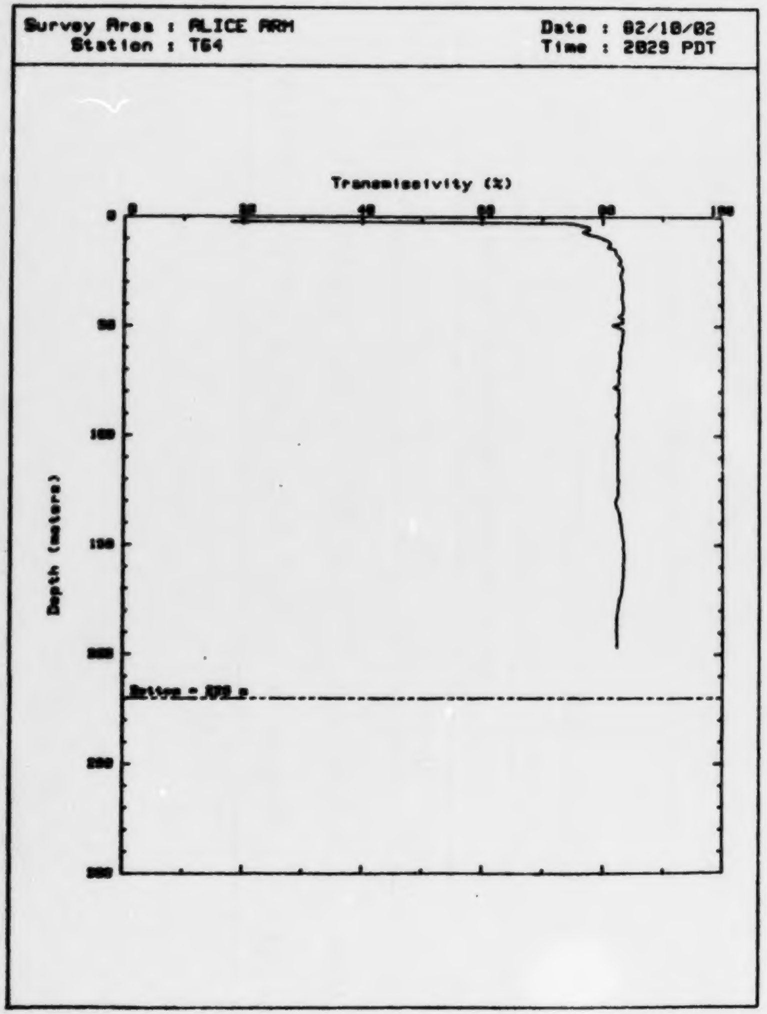


FIGURE 10 TYPICAL TURBIDITY PROFILE - OUTSIDE TAILINGS PLUME (STATION T-64) October 1982

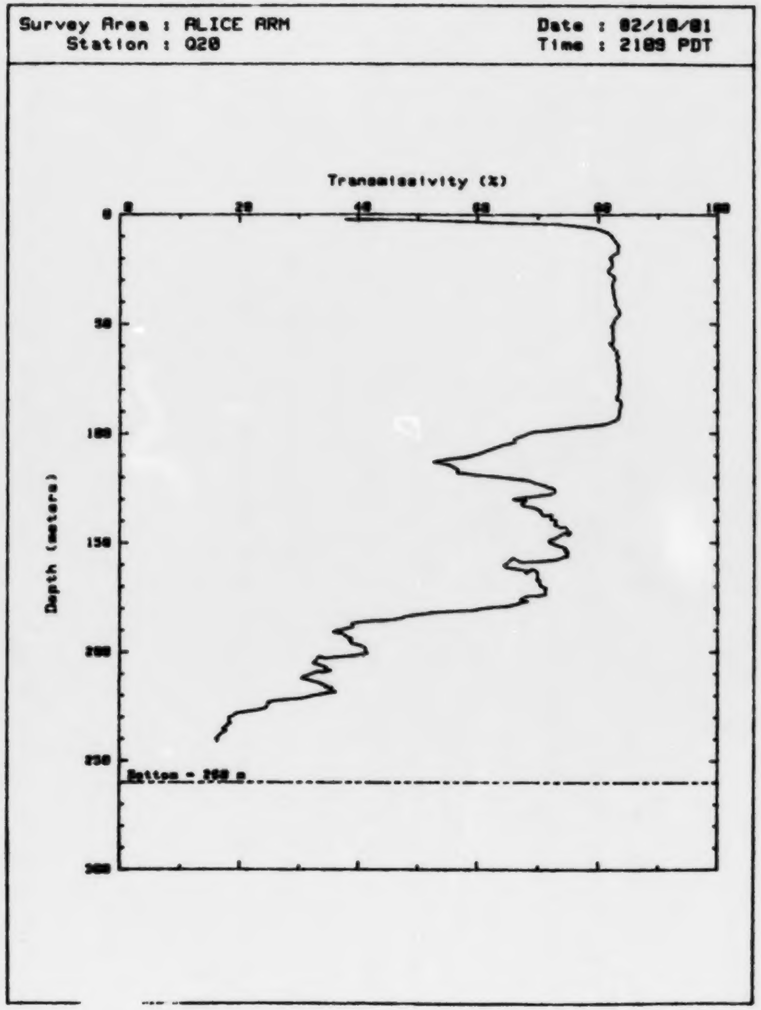


FIGURE 11 TYPICAL TURBIDITY PROFILE - INSIDE TAILINGS PLUME (STATION Q-20) October 1982

metres and the bottom (Figure 11). Similarity between the July and October, 1982 transmittance profiles suggests that the depth of the mid-water turbidity plume does not significantly change on a seasonal basis.

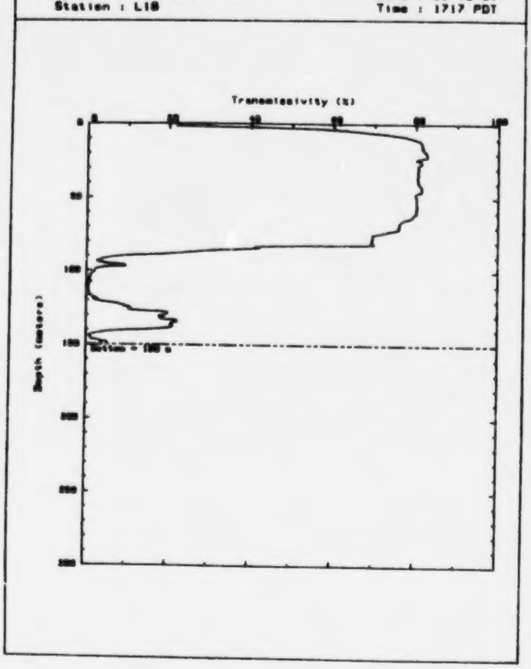
3.2.1.2 Cross inlet comparisons. Figures 12a, 12b and 12c illustrate a series of cross inlet station transmittance profiles. Station L-10, located near the outfall, had the highest turbidity levels; percent transmittance levels in October approached zero at approximately 100 metres. Similar to the pattern seen in July, this turbidity peak was less pronounced at the south shore stations and decreased in intensity at the stations extending seaward.

3.2.2 Water Analyses.

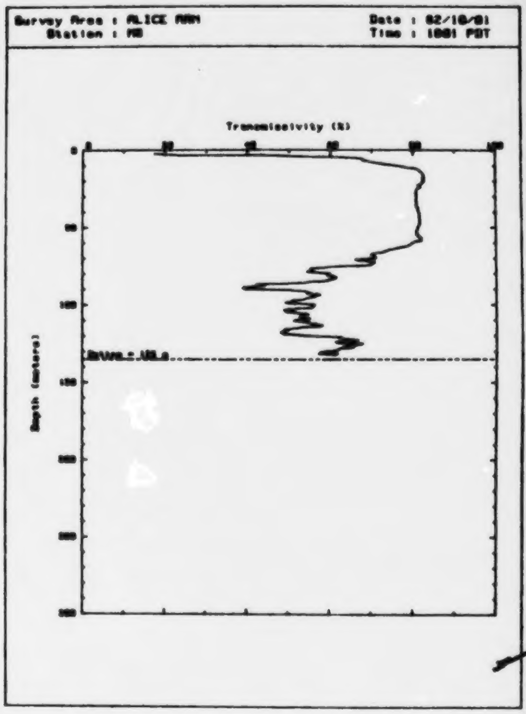
3.2.2.1 Particulate trace metals. Particulate trace metal concentrations determined from the October 1982 water samples are summarized in Table 3. The levels were variable with respect to distance from the outfall, however, particulate copper, lead, zinc and cadmium concentrations were higher in October than in July, 1982 (Table 4). These elevated concentrations could be a result of higher surface runoff or because Kitsault mine ceased operation briefly during the July sampling period, thus accounting for the lower levels of particulate trace metals.

TABLE 4 PARTICULATE TRACE METAL CONCENTRATIONS - July and October 1982

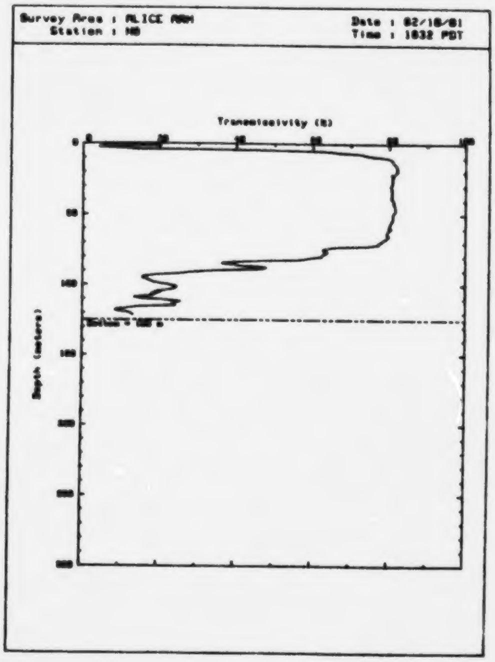
TIME	RANGE OF METAL CONCENTRATION (mg/g)			
	Cu	Pb	Zn	Cd
July, 1982	< 3.0-< 7.0	120.0-230.0	167.0-355.0	1.0-6.0
October, 1982	97.1-197.0	244.0-304.0	416.0-692.0	9.0-12.5



STATION L-10



STATION M-9



STATION N-8

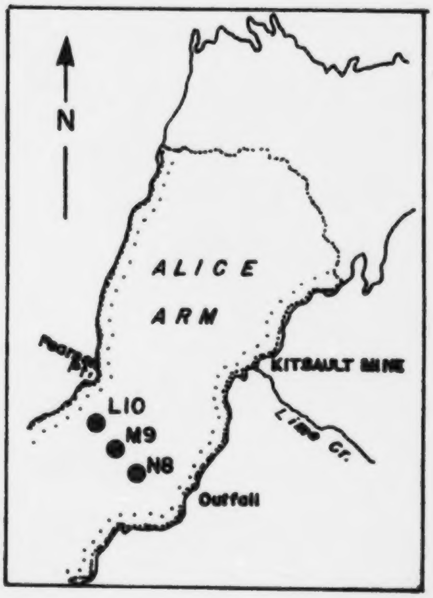
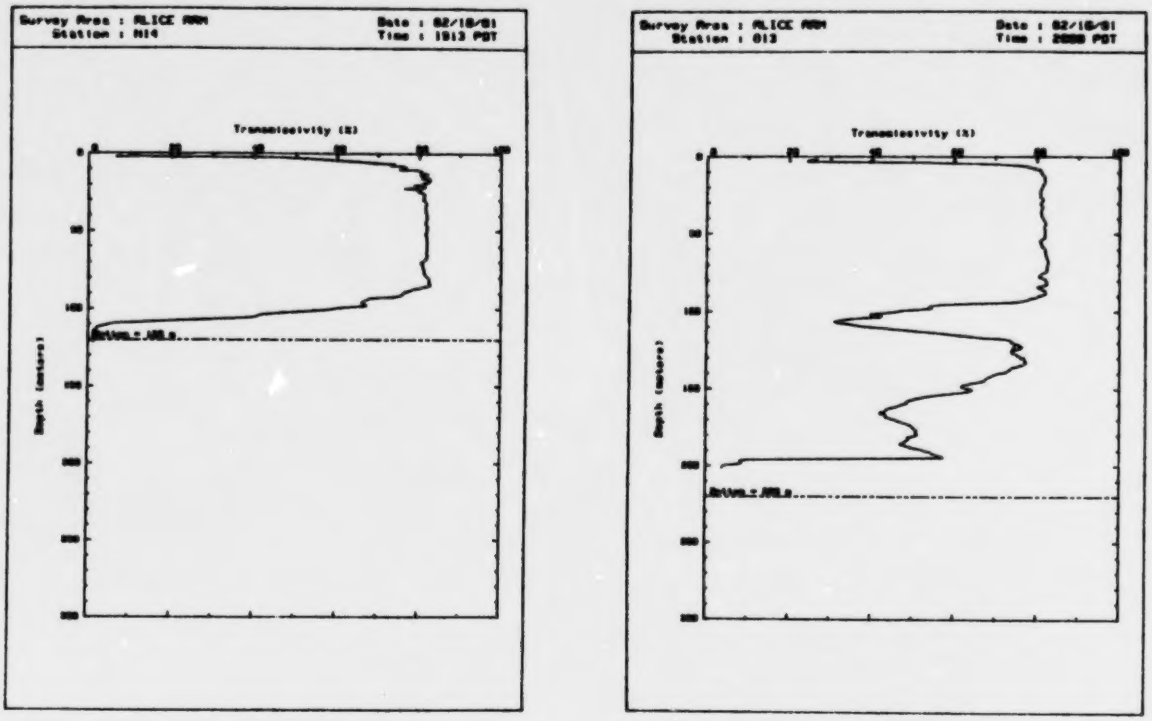
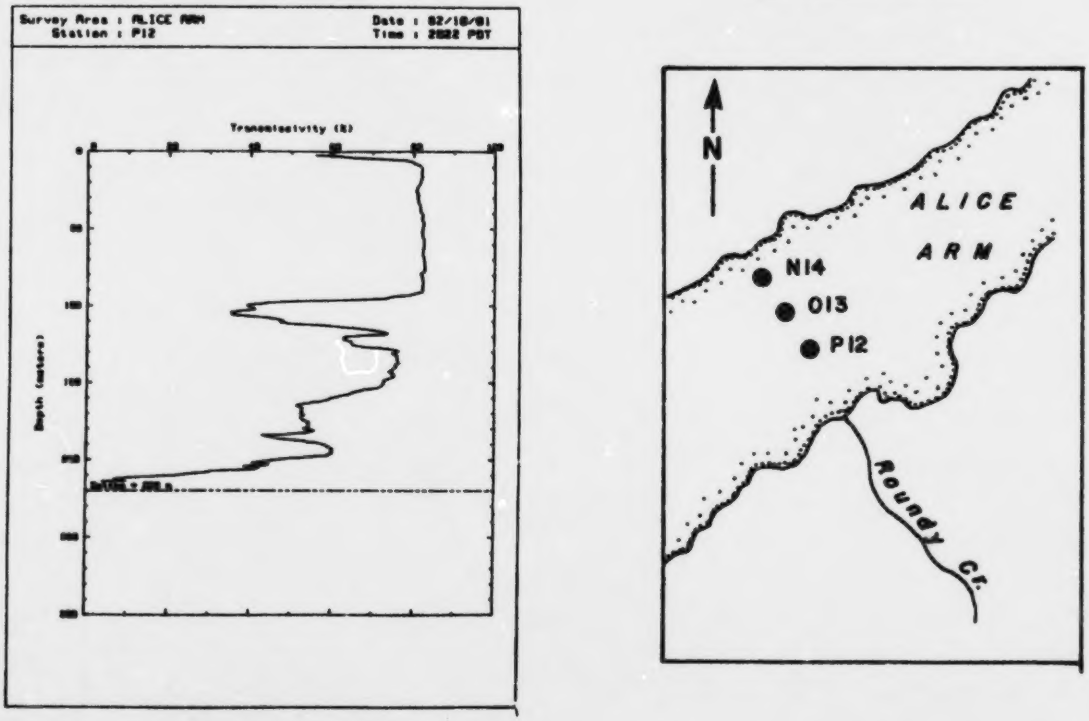

N
ALICE
ARM
KITSAULT MINE
Lime Cr.
L10
M9
N8
Outfall

FIGURE 12a CROSS INLET TURBIDITY PROFILES - STATIONS L-10, M-9 AND N-8, October 1982



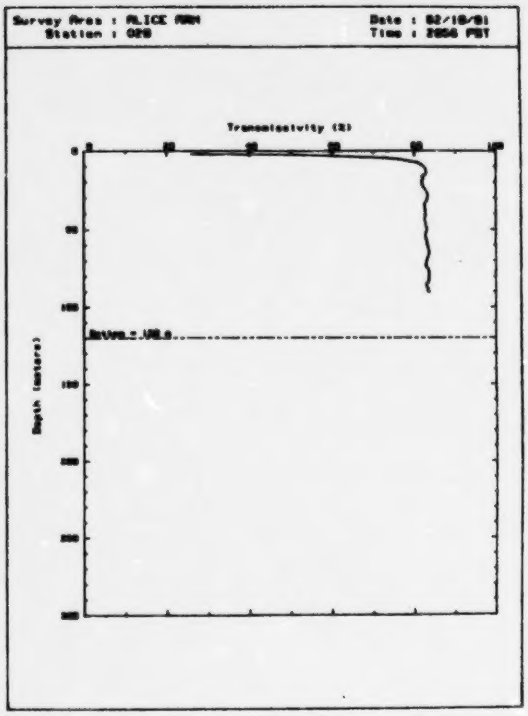
STATION N-14

STATION O-13

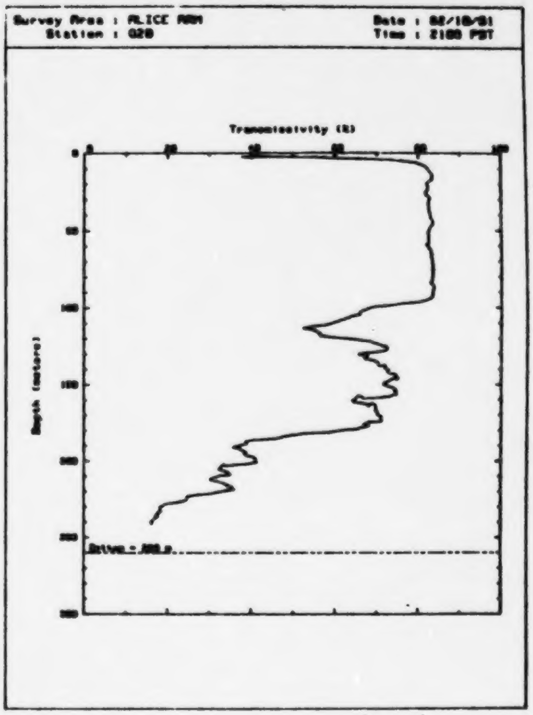


STATION P-12

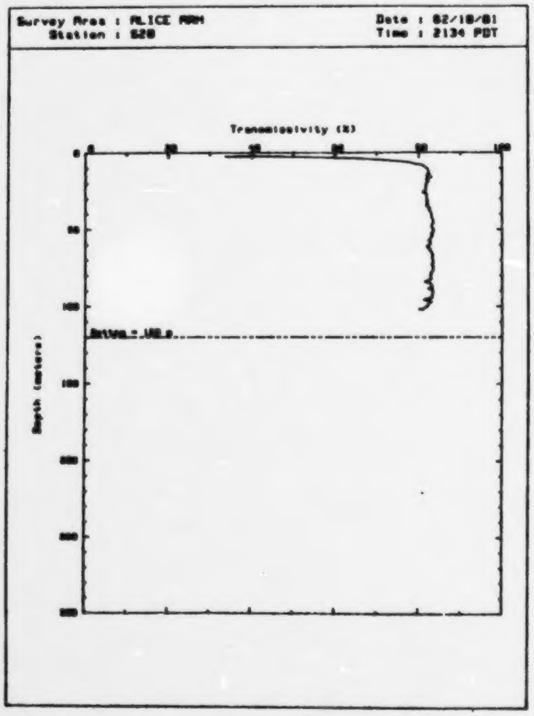
FIGURE 12 b CROSS INLET TURBIDITY PROFILES - STATIONS N-14, O-13 AND P-12, October 1982



STATION O-20



STATION Q-20



STATION S-20

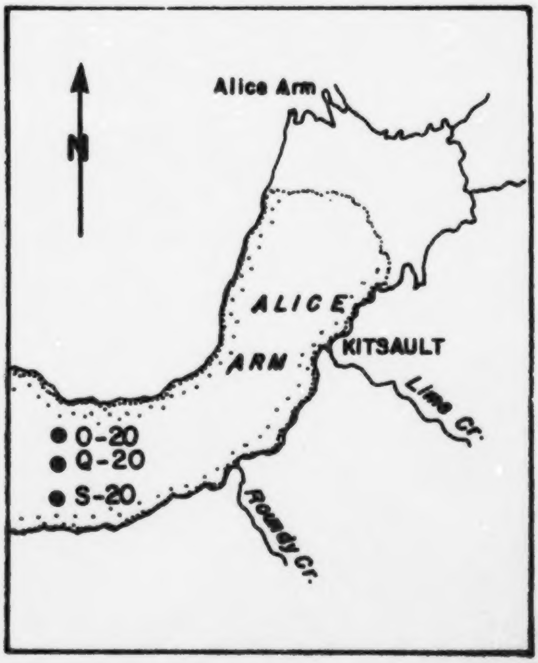

N
Alice Arm
ALICE
ARM
KITSAULT
Lime Cr.
Roundy Cr.
O-20
Q-20
S-20

FIGURE 12c CROSS INLET TURBIDITY PROFILES - STATIONS O-20, Q-20 AND S-20, October 1982

TABLE 3 ALICE ARM WATER CHEMISTRY ANALYSIS - OCTOBER, 1982

SAMPLE #	STATION	DEPTH (m)	% TRANS (25 cm)	NFR (mg/l)	FIXED RESIDUE (mg/l)	NFVR (mg/l)	FACTOR	TRACE METALS (ug/g)									
								Cu	Pb	Zn	Cd	Mo	Cr	As	% Fe	Al	Mn
503	L-10	115.5	4.5	98.0	97.0	0.0	36.20	99.1	244	416	8.98	60.4	19.9	< 2	20400	5600	387
504	N-8	97.2	20.6	41.0	41.0	0.0	81.40	152.0	203	658	8.6	31.8	36.4	< 4	20300	4500	620
506	O-13	166.7	46.8	10.0	10.0	0.0	333.00	197.0	304	692	9.4	53.0	51.0	< 20	15900	13000	556
507	P-12	215.0	14.9	45.0	45.0	0.0	76.80	106.0	262	590	9.2	52.3	31.0	< 4	17600	6010	663
508	Q-20	238.6	16.8	25.0	25.0	0.0	140.00	97.1	262	644	12.5	51.0	27.1	15	19600	4980	782
509	L-10	120.8	1.8	104.0	104.0	0.0	48.10	97.7	281	450	9.3	52.7	23.8	< 2	23900	7000	534

3.2.2.2 Gravimetric analysis. Results from the October 1982 gravimetric analysis are summarized in Table 3. Non filterable residue (NFR) levels ranged from 10 mg/l to 104 mg/l during this sampling period. As observed in July 1982, maximum NFR levels were detected at Station L-10 located on the north shore of Alice Arm opposite the outfall. NFR concentrations were higher at stations further from the outfall (O-13 and Q-20) during October than in July, 1982: NFR levels observed at these stations ranged from 10 mg/l to 25 mg/l in October compared to 1.3 mg/l to 3.0 mg/l in July.

4.0 GENERAL DISCUSSION

The presence of a midwater tailings plume in Alice Arm raised two basic questions. One deals strictly with compliance to the AATDR; the other concerns its environmental significance. During the early stages of mine startup in April 1981, the surface of the midwater plume in upper Alice Arm was near the specified boundaries of 50 metres within the immediate area of the outfall (defined as the area between Lime and Roundy Creeks) and 100 metres outside this region. In 1982, following modifications to the outfall to facilitate control of the saltwater dilution rate, the surface of the plume appeared at a slightly deeper depth thus increasing the opportunity for maintaining compliance with the regulations.

From the environmental standpoint, it is recognized that direct tailings disposal will result in some biological impact simply through the burial and smothering of the benthos and their habitat. The long-term effect of this is presently not fully understood.

From the transmissometer profiles it is evident that a portion of the tailings discharge at Kitsault is remaining in suspension around the outfall. Burling et al (1981) estimated that 92% to 98% of the daily mine production falls towards that bottom and may extend down the inlet leaving an estimated 2% to 8% remaining in the upper tailings turbidity layer. It is worth noting that during observations from the submersible, Pisces IV, in July 1982 when the mine was in full production, extensive turbidity was evident within the water column but visibility improved substantially before contact with the bottom. Nowhere was a concentrated flow of tailings solids seen along the bottom even near the outfall. The tailings plume in the area of the outfall encompasses the full width of Alice Arm and extends along the north side seaward for approximately 4.5 km. The existance of tailings suspended in the water column signifies that deposition is also occurring at depths in which the turbidity layer is present.

More studies are required to assess the biological effects of midwater turbidity on pelagic communities such as the work completed by Anderson and Mackas (1985) which examines the effects of mine tailing on the community structure, mortality, respiration, feeding and swimming behavior in various species of zooplankton. Generally, they found that the AMAX/Kitsault tailings did not cause any measureable short-term physiological damage to the zooplankton but the community structure did show some anomalies in the immediate vicinity of the discharge.

Until the long-term biological effects of the plume are fully understood, continued efforts should be directed towards lowering the depth of the tailings plume and reducing the area of impact within the water column and on the bottom to as small as area as technically feasible.

REFERENCES

1. Amax of Canada Limited, 1984. Kitsault Mine Environmental Monitoring Program (AATDR, PE-4335) Annual Report, 1983.

2. Amax of Canada Limited, 1983. Kitsault Mine Environmental Monitoring Program (AATDR, PE-4335) Annual Report, 1982 (2 Vols.).

3. Amax of Canada Limited, 1982. Kitsault Mine Environmental Monitoring Program (AATDR, PE-4335) Annual Report, 1981 (2 Vols.).

4. Anderson, E.P. and D.L. Mackas, 1985. Lethal and Sublethal Effects of a Molybdenum Mine Tailing on Marine Zooplankton: Mortality, Respiration, Feeding and Swimming Behaviour in *Calanus marshallae*, *Metridia pacifica* and *Euphausia pacifica* - Draft of submission to Marine Environmental Research.

5. Burling, R.W., J.E. McInerney and W.K. Oldham, 1983. A Continuing Technical Assessment of the Amax/Kitsault Molybdenum Mine Tailings Discharge to Alice Arm, British Columbia. Prepared for the Hon. P. De Bané, Minister of Fisheries and Oceans, July 1983.

6. Burling, R.W., J.W. McInerney and W.K. Oldham, 1981. A Technical Assessment of Amax/Kistault Molybdenum Mine Tailings Discharge to Alice Arm, British Columbia. Prepared for the Hon. R. LeBlanc, M.P., Minister of Fisheries and Oceans, Government of Canada, July 1981.

7. DeMill, D., 1983. Environmental Studies in Alice Arm and Hastings Arm, B.C. - Part V - Baseline and Initial Production Periods - Amax/ Kitsault Mine - Submersible Observations and Otter Trawls, 1980-1982. EPS Regional Program Report 83-05.

8. Environmental Protection Service, 1982. Environmental Studies in Alice Arm and Hastings Arm, B.C. - DRAFT Part IV: Initial Production Period - Amax/Kitsault Mine - Transmissometer and Water Chemistry, 1981-1982. Submission to the Amax Scientific Review Panel.

9. Goyette, D. Personal Observations, Submersible, Pisces IV Survey, July 1982.

10. Govette, D. and L. MacLeod, 1984. A Computer-Controlled Water Column Profiling System. EPS Regional Program Report 84-09.

11. Hinder, R. and D. Goyette, 1982. Environmental Studies in Alice Arm and Hastings Arm, B.C. - Part II: Baseline Studies - Transmissometry and Water Chemistry. Submission to the Amax Scientific Review Panel.

12. Kathman, R.D., R.O. Brinkhurst, R.E. Woods and D.C. Jeffries, 1983. Benthic Studies in Alice Arm and Hastings Arm, B.C. in Relation to Mine Tailings Dispersal. Canadian Technical Report of Hydrography and Ocean Sciences, No. 22.

13. Kathman, R.D., R.O. Brinkhurst, R.E. Woods and S.F. Cross, 1984. Benthic Studies in Alice Arm, B.C., Following Cessation of Mine Tailings Disposal. Canadian Technical Report of Hydrography and Ocean Sciences, No. 37.

14. Krauel, D.P., 1981. Deep Water Flow and Exchange Processes in Alice Arm, B.C. Inst. of Ocean Sciences, Contractor Report Series 81-4; Prepared for Environmental Protection Service.

15. MacDonald, R.W., M.C. O'Brien and D.M. MacDonald, 1984a. Ocean Chemistry Data Report: Alice Arm, Observatory Inlet; Part 1, December 1981, January 1982, June 1982, January 1983. Canadian Data Report of Hydrology and Ocean Sciences No. 17 (Part 1). Institute of Ocean Sciences and Department of Fisheries and Oceans.

16. MacDonald, R.W., M.C. O'Brien and D.M. MacDonald, 1984b. Ocean Chemistry Data Report: Alice Arm, Observatory Inlet; Part 2, March 1982. Canadian Data Report of Hydrology and Ocean Sciences No. 17 (Part 2). Institute of Ocean Sciences and Department of Fisheries and Oceans.

17. Mackas, D.L. and E.P. Anderson, 1985. Small Scale Zooplankton Community Variability in a Northern British Columbia Fjord System - Draft of submission to Estuarine Coastal Marine Science.

18. Rambold, P.S. and D.J. Stucchi, 1983. An Analysis of the Alice Arm "Crash Program" Data - Summer 1981. Institute of Ocean Sciences, Sidney, B.C.

19. Western Canada Hydraulic Laboratories Ltd., 1978. Kitsault Mine Marine Tailings Disposal Study. Report to Climax Molybdenum Corp. of British Columbia Ltd., May 1978.

6.0 ACKNOWLEDGEMENTS

The authors would like to express their appreciation to the Masters, officers and crews of the C.S.S. Vector and M.V. Pandora II for their valuable assistance during this study. The cooperation and support given by the pilots of the submersible, Pisces IV is also gratefully acknowledged. We would also like to thank R. Hinder, D. DeMill, F. Hickey and L. MacLeod for their assistance during the field studies. L. Harding and M. Pomeroy provided helpful comments in preparation of this manuscript. Special thanks go to M. Ito for his support and encouragement during this and other portions of the studies in Alice Arm.

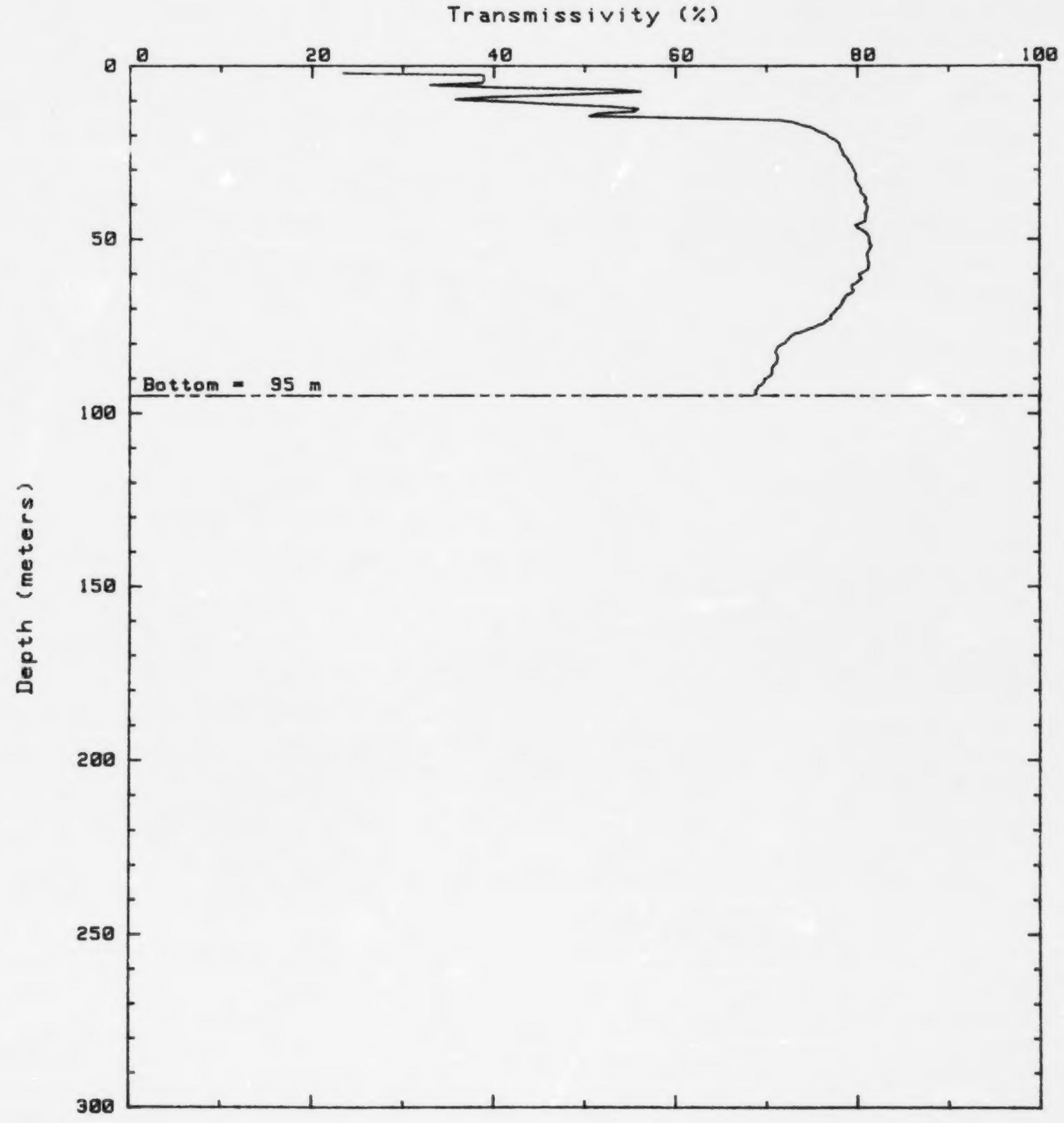
7.0 APPENDICES

APPENDIX IA

TRANSMITTANCE PROFILES - JULY 1982

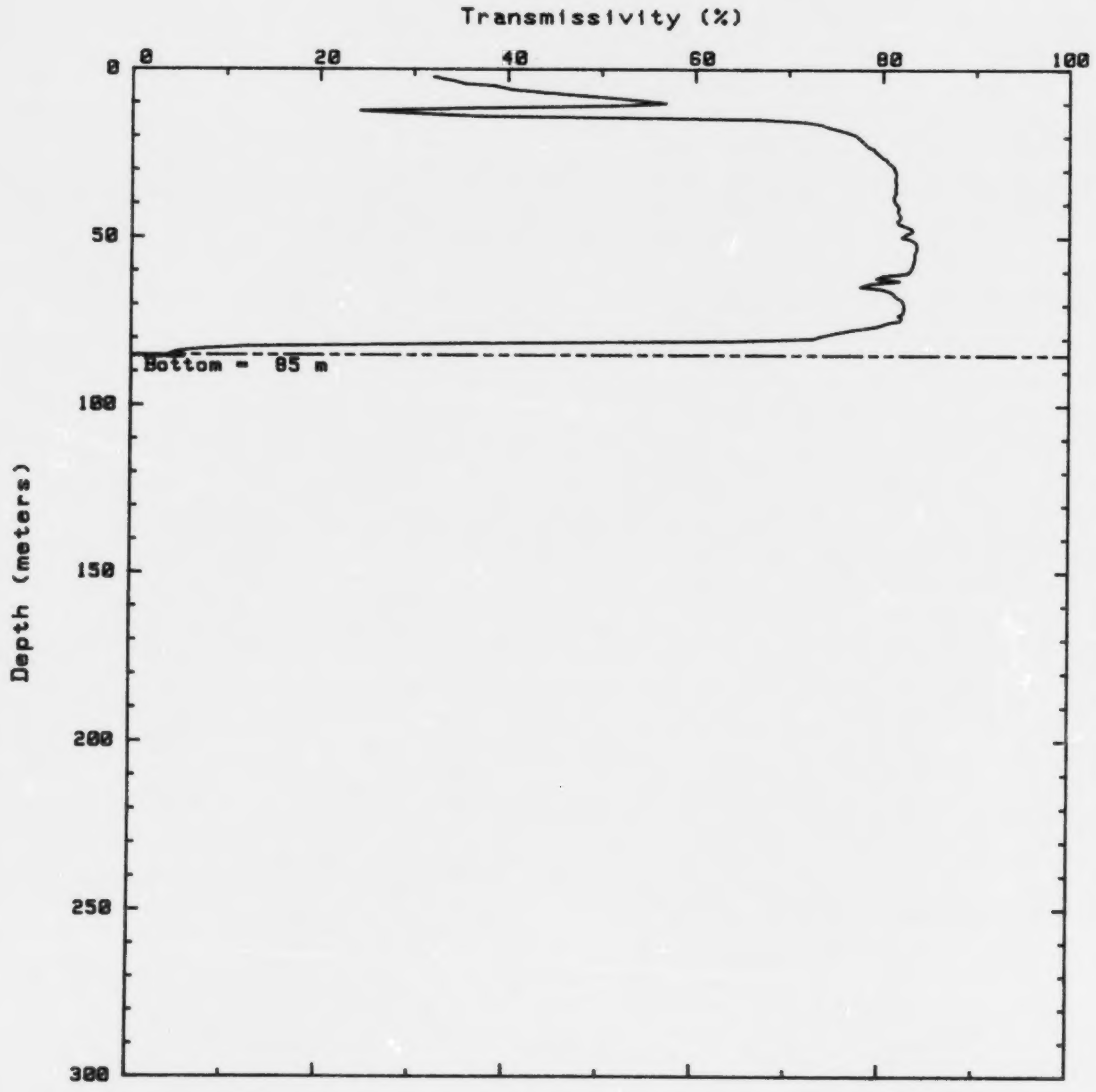
Survey Area : ALICE ARM
Station : G-5

Date : 82/07/13
Time : 0013 PDT



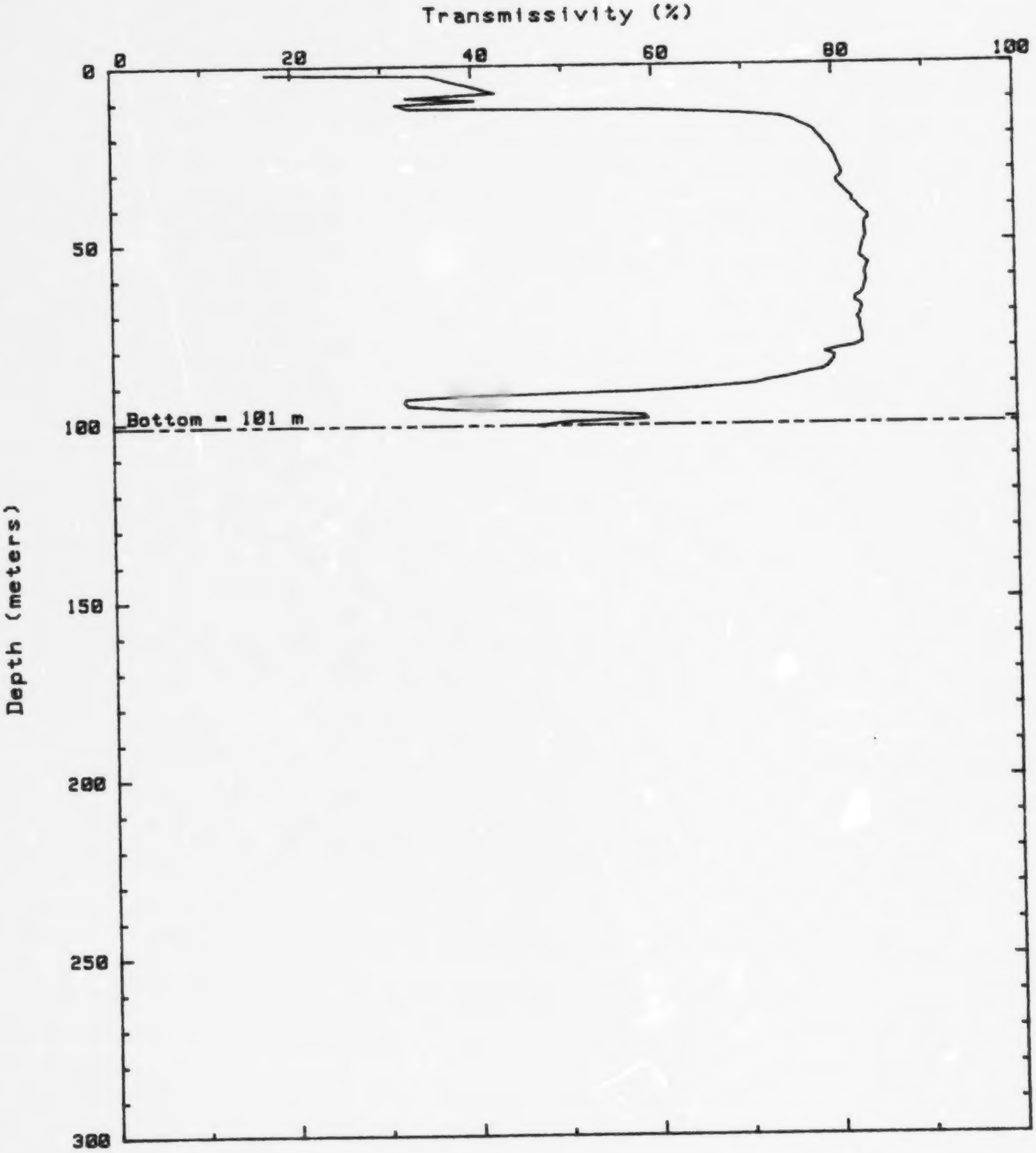
Survey Area : ALICE ARM
Station : N-8

Date : 82/07/08
Time : 2008 PDT



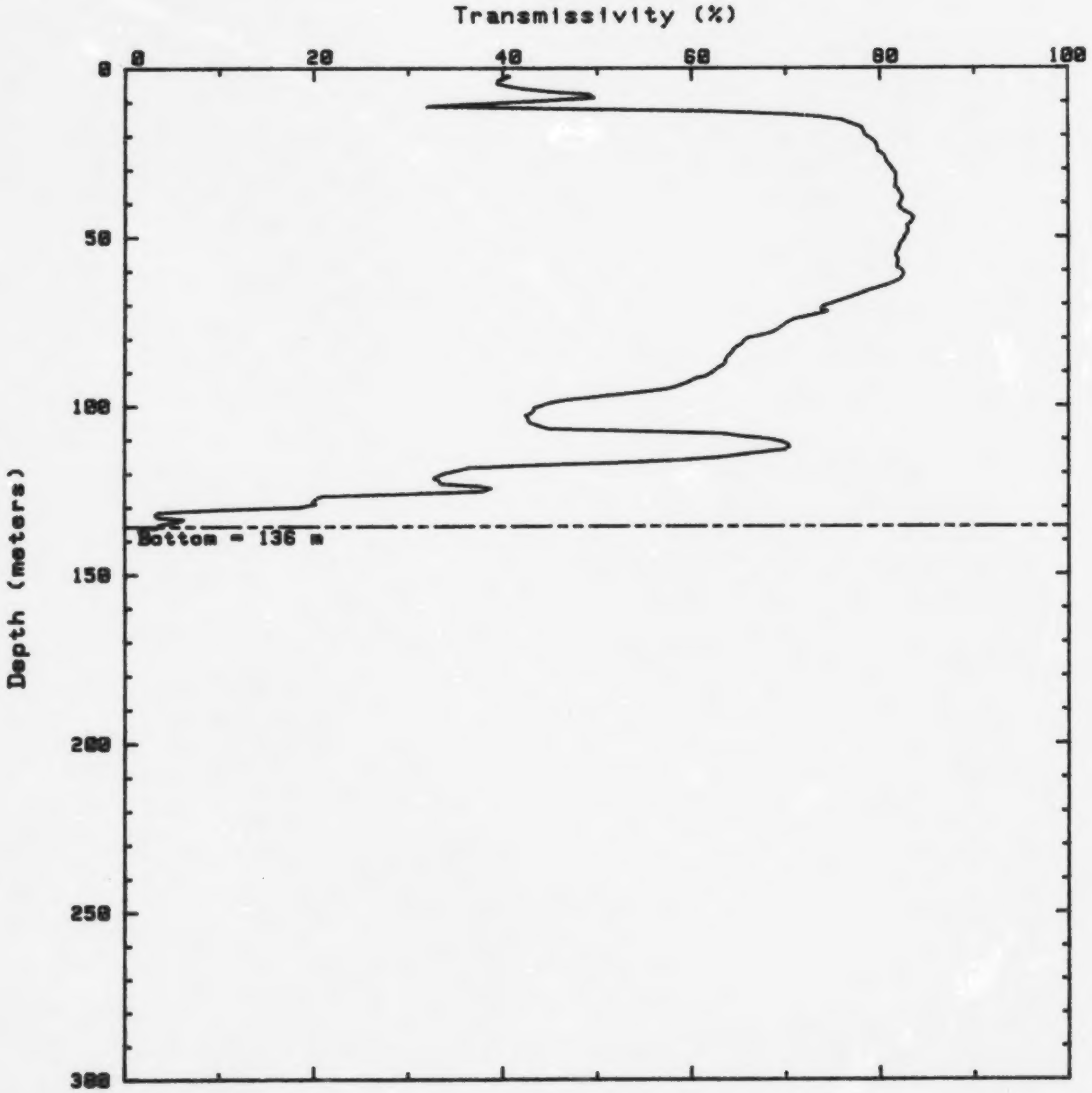
Survey Area : ALICE ARM
Station : N-8

Date : 82/07/08
Time : 2354 PDT



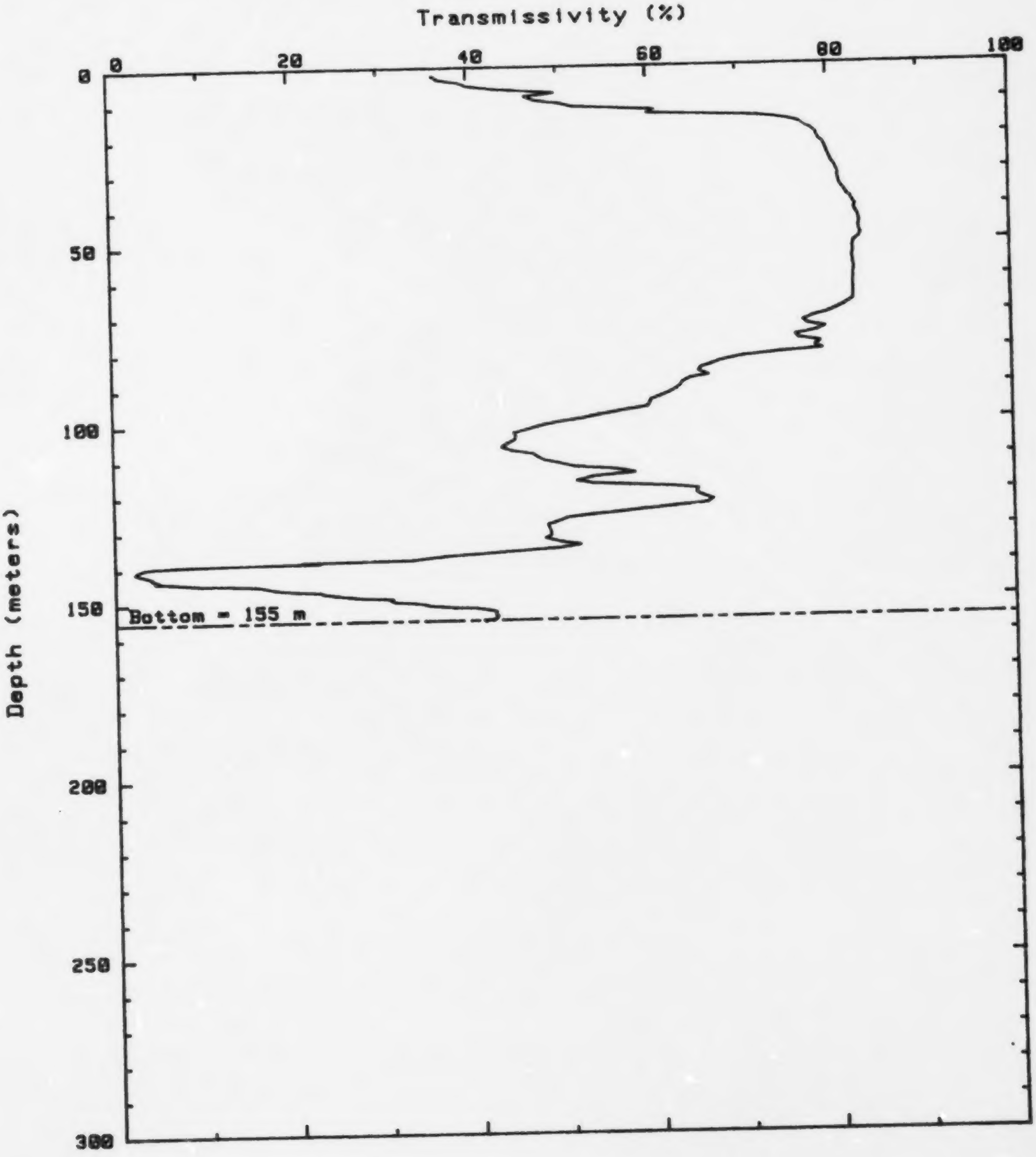
Survey Area : ALICE ARM
Station : N-8

Date : 82/07/09
Time : 0016 PDT



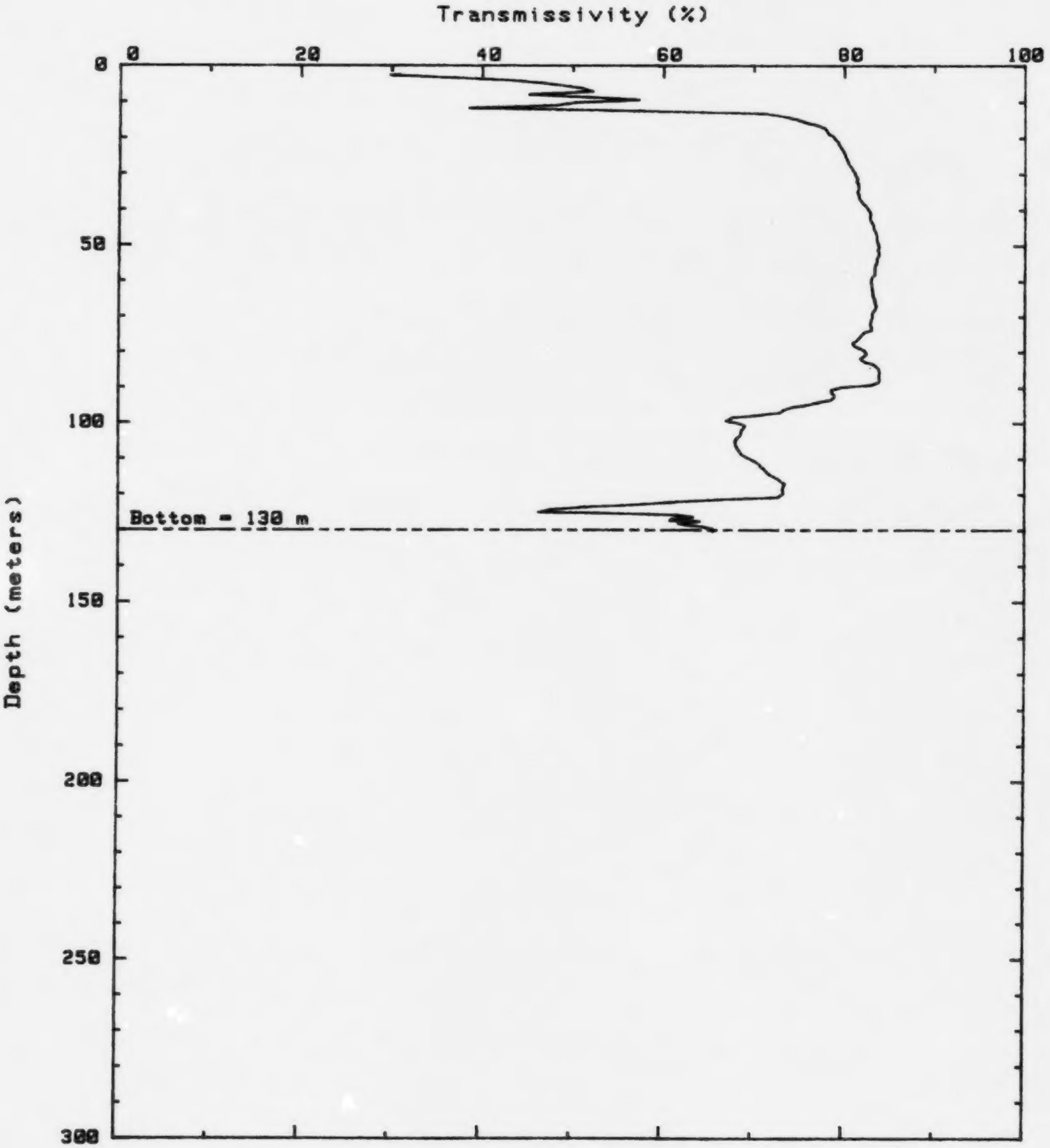
Survey Area : ALICE ARM
Station : N-8

Date : 82/07/09
Time : 0048 PDT



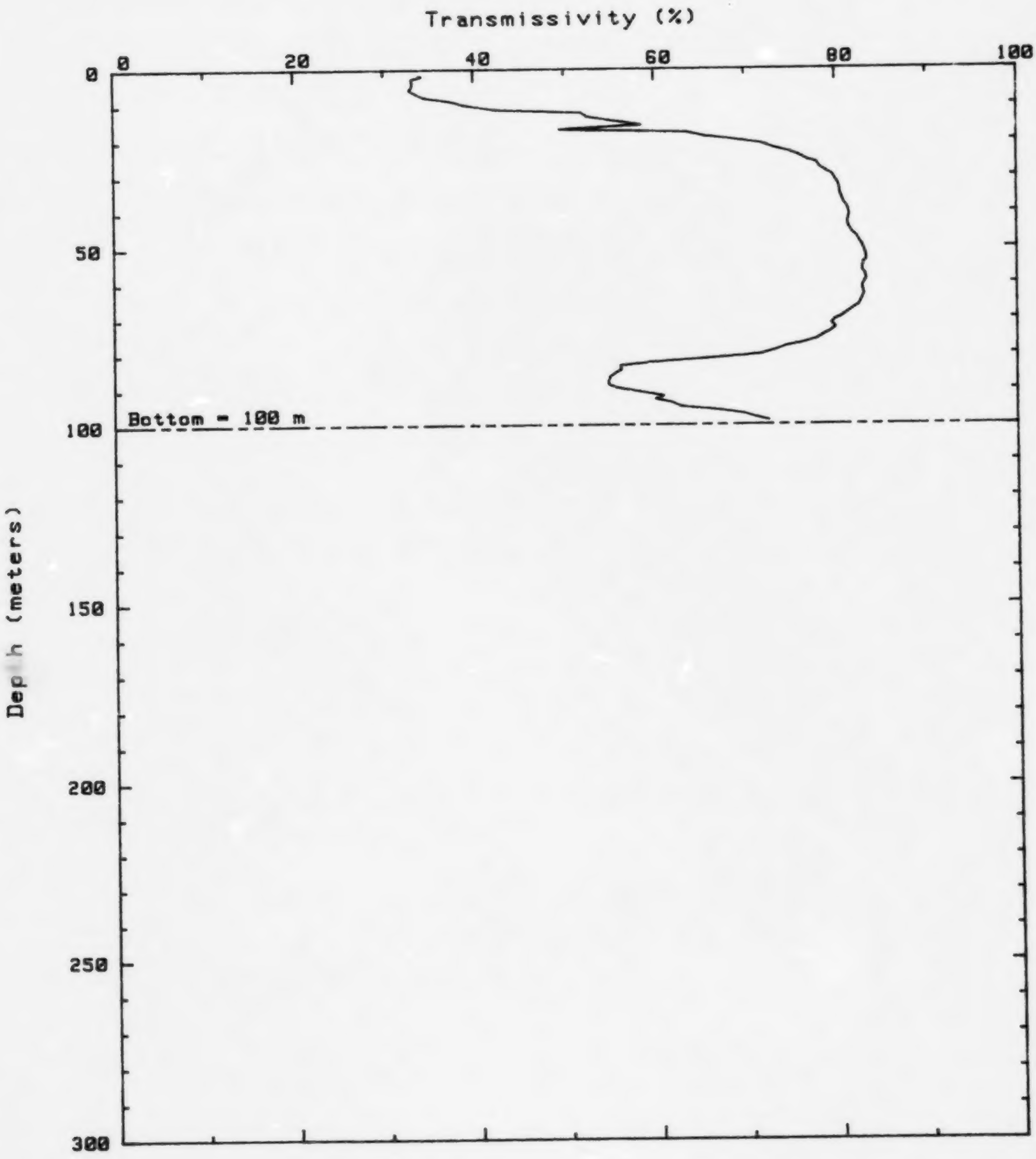
Survey Area : ALICE ARM
Station : N-8

Date : 82/07/09
Time : 0109 PDT



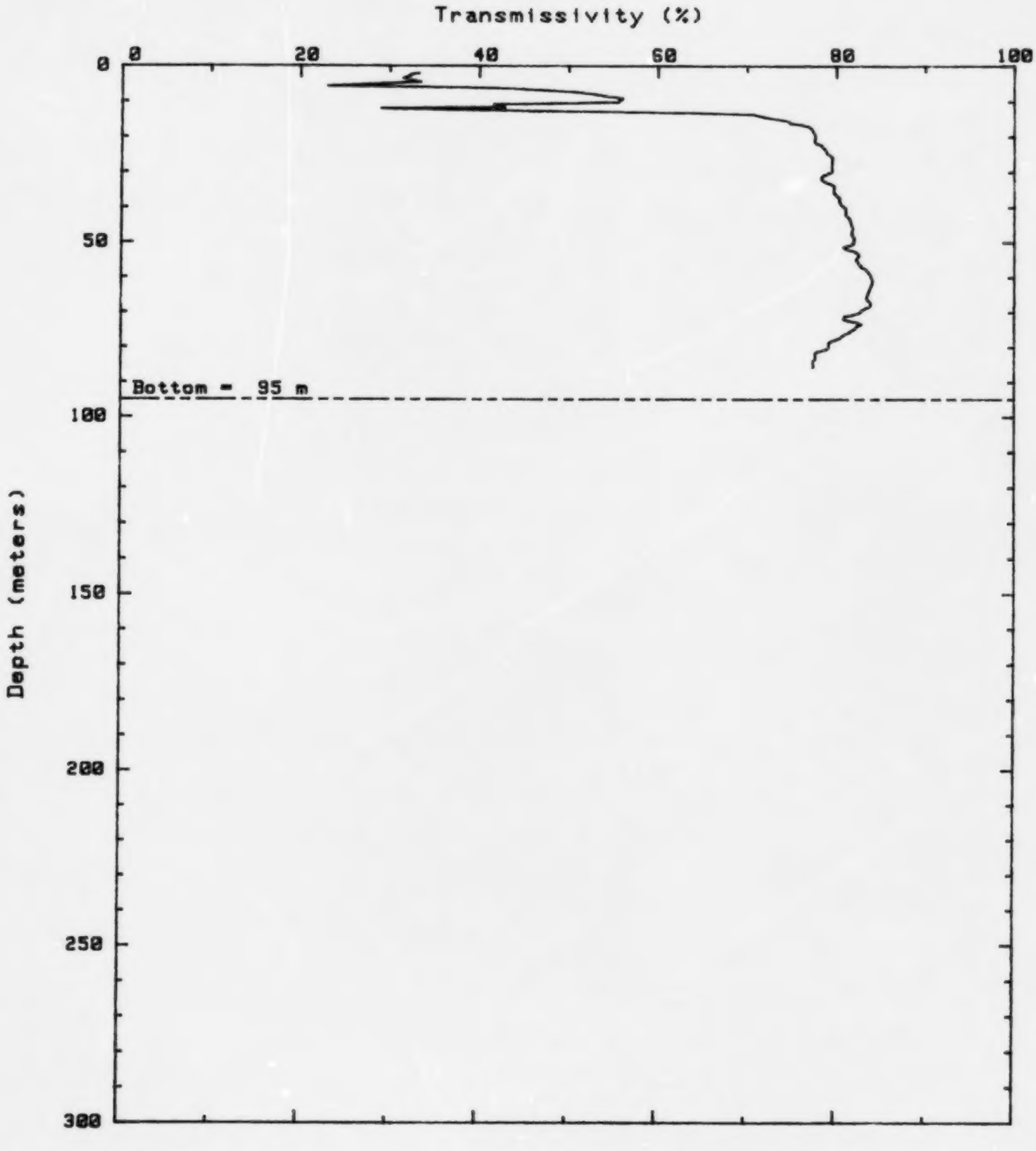
Survey Area : ALICE ARM
Station : N-8

Date : 82/07/11
Time : 1819 PDT



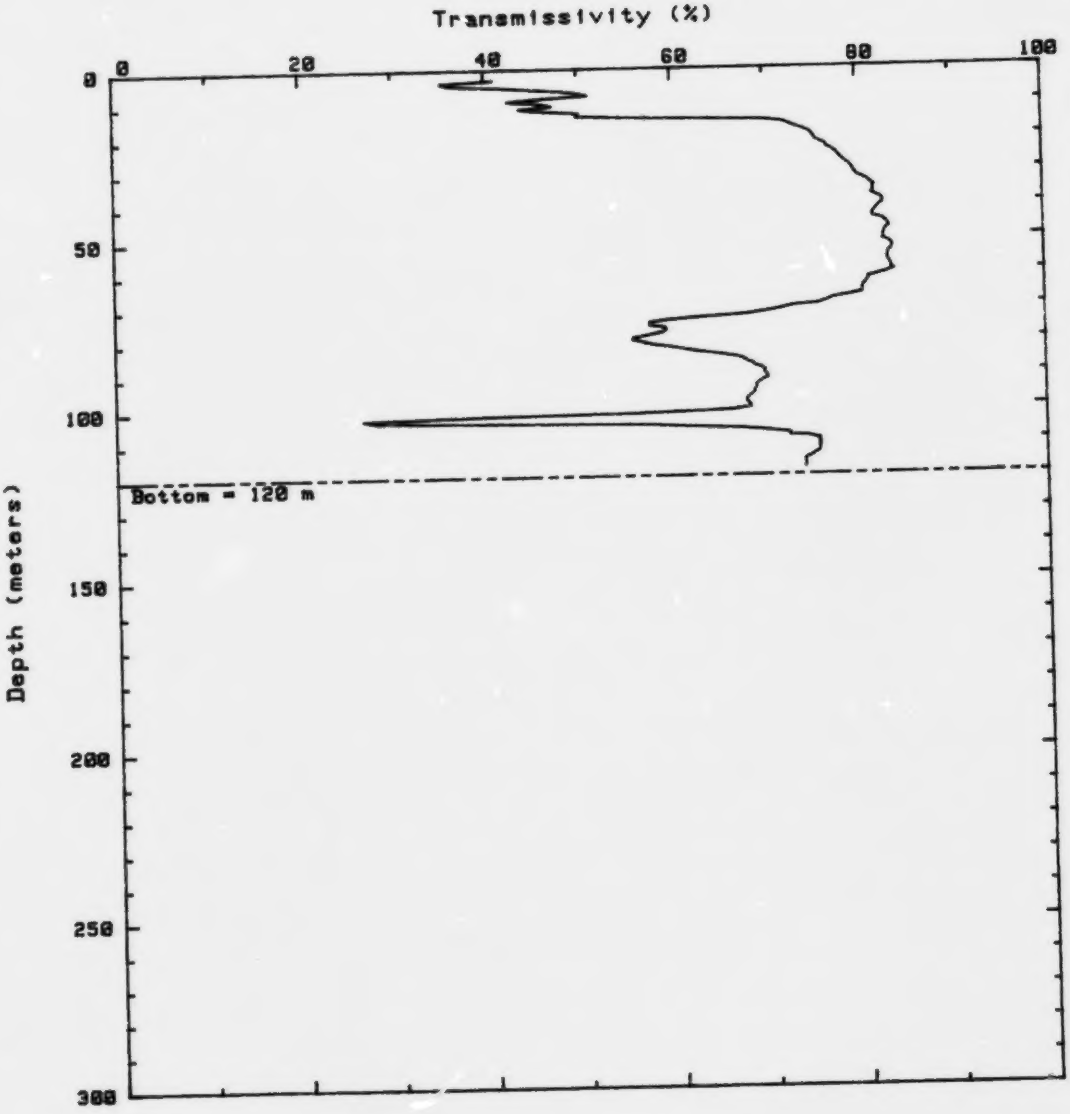
Survey Area : ALICE ARM
Station : N-8

Date : 82/07/11
Time : 0115 PDT



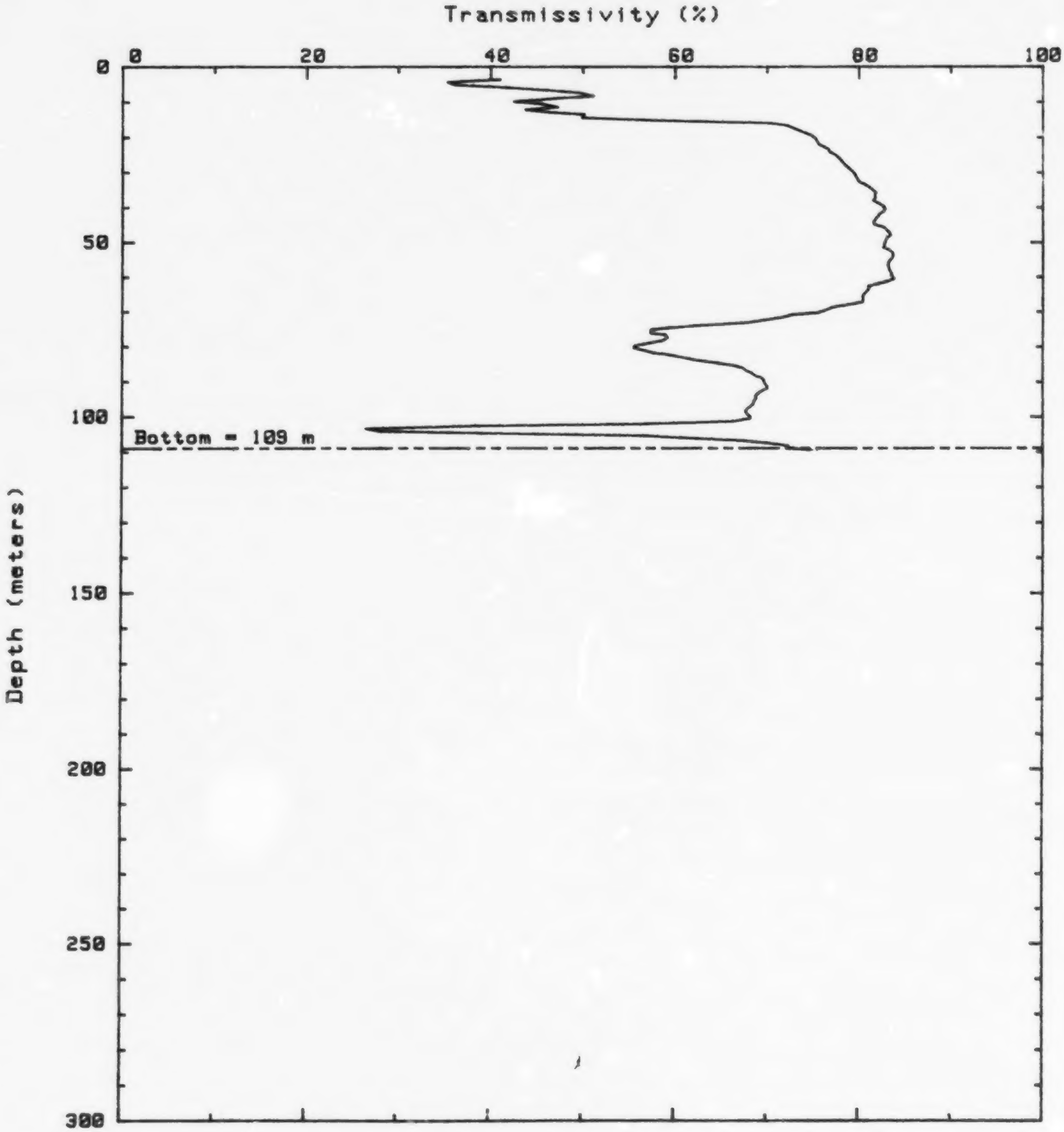
Survey Area : ALICE ARM
Station : N-8

Date : 82/07/12
Time : 2311 PDT



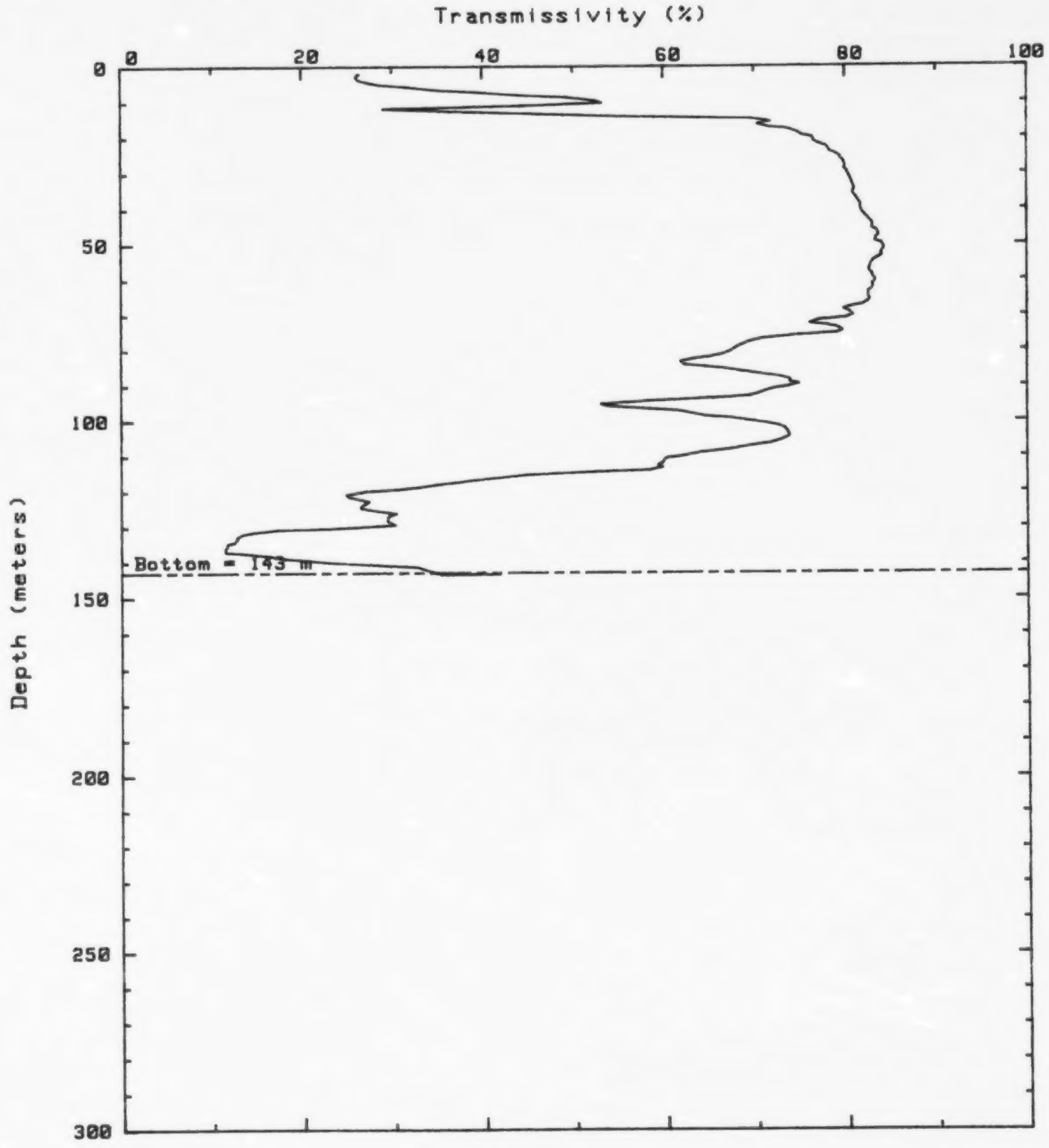
Survey Area : ALICE ARM
Station : N-8

Date : 82/07/12
Time : 2311 PDT



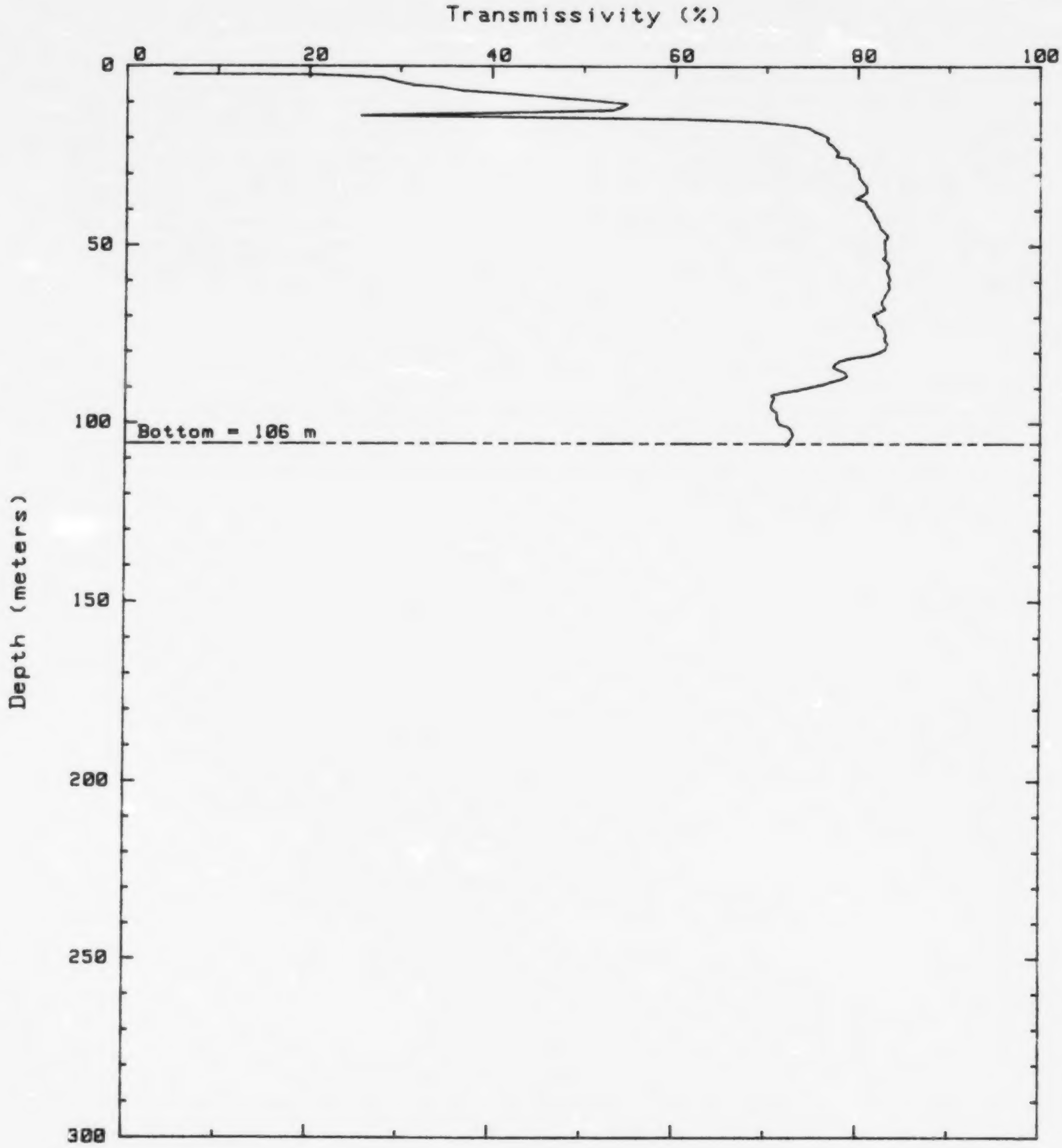
Survey Area : ALICE ARM
Station : M-9

Date : 82/07/08
Time : 2015 PDT



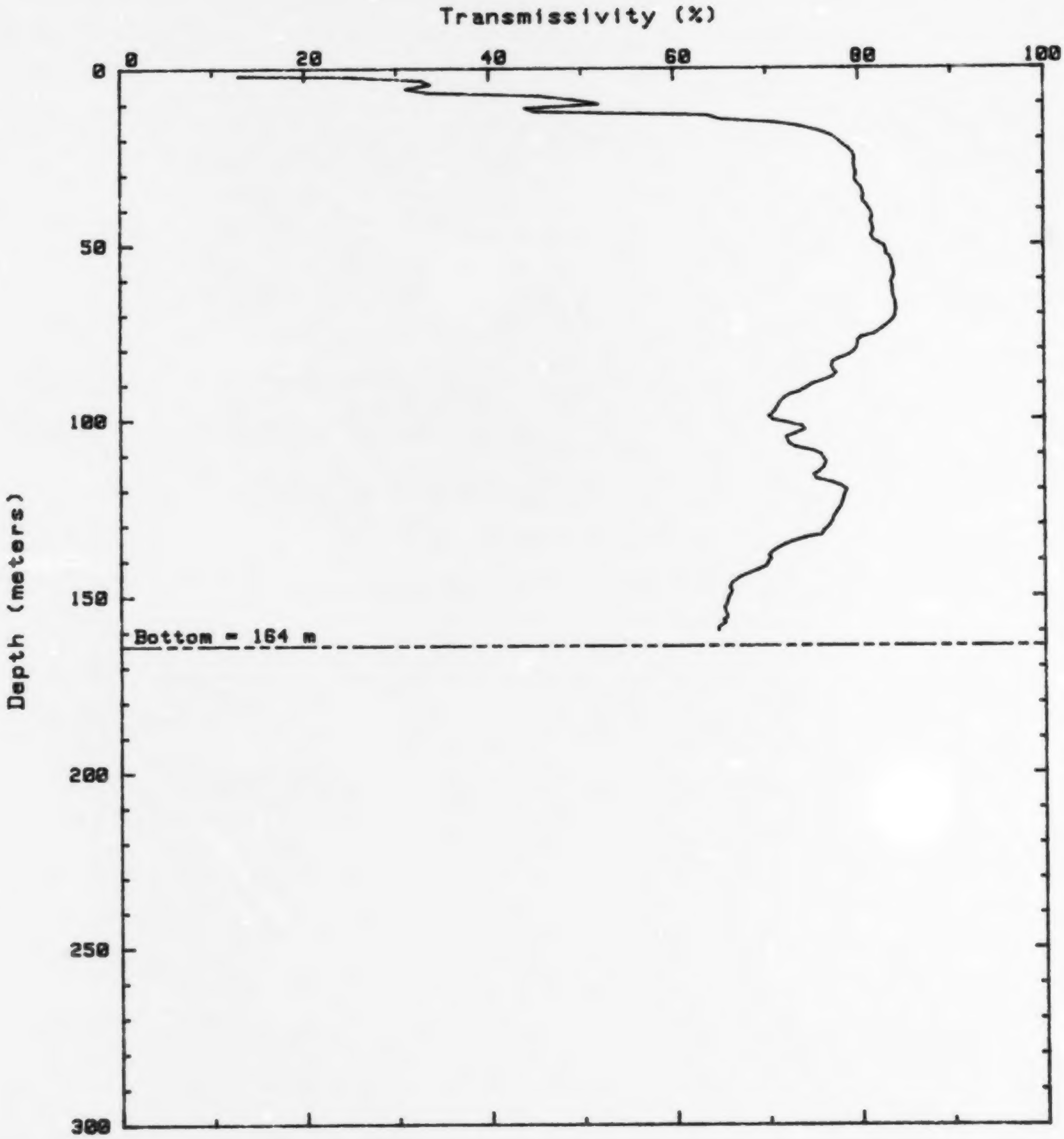
Survey Area : ALICE ARM
Station : M-9

Date : 82/07/08
Time : 2031 PDT



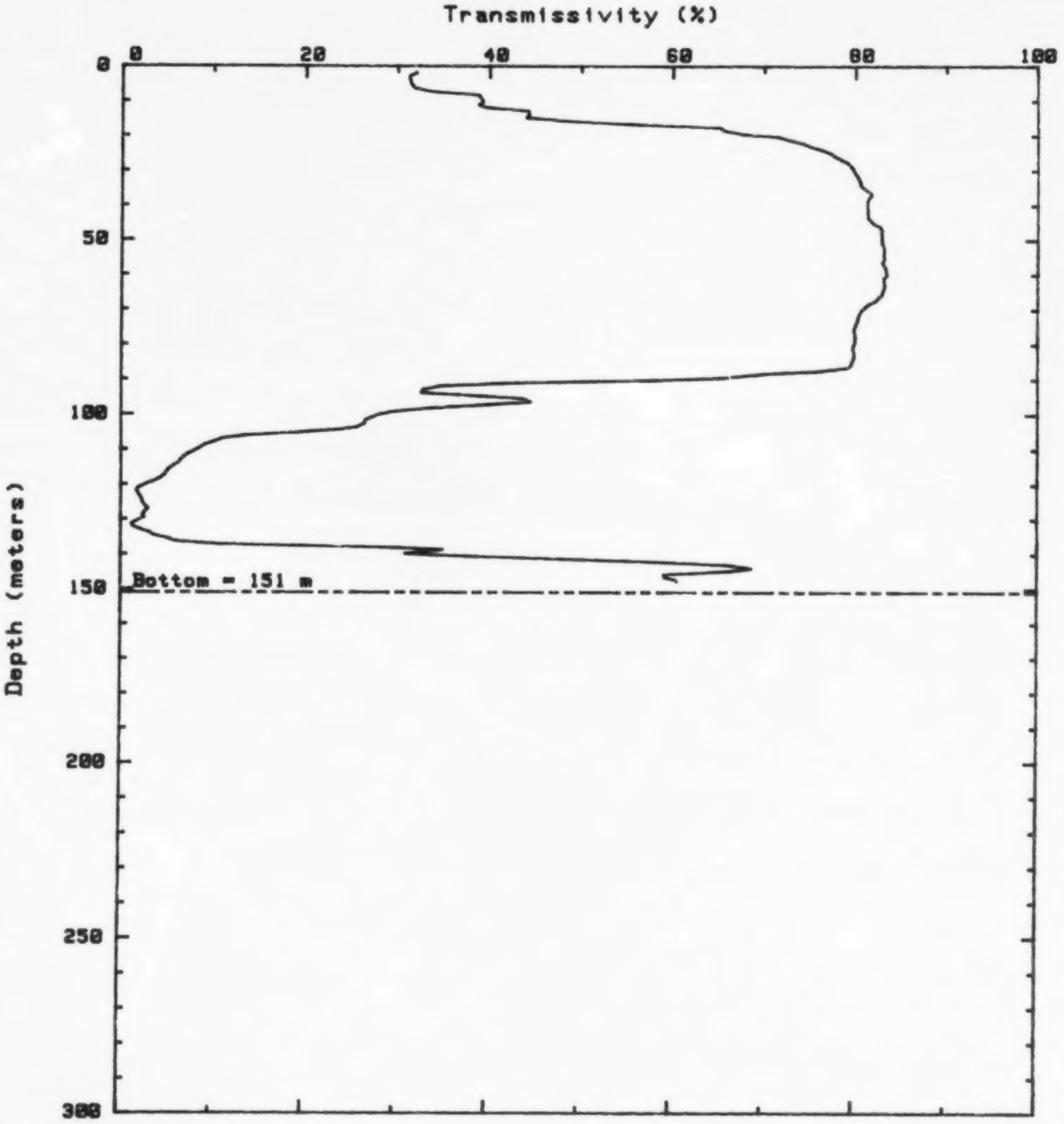
Survey Area : ALICE ARM
Station : M-9

Date : 82/07/11
Time : 0058 PDT



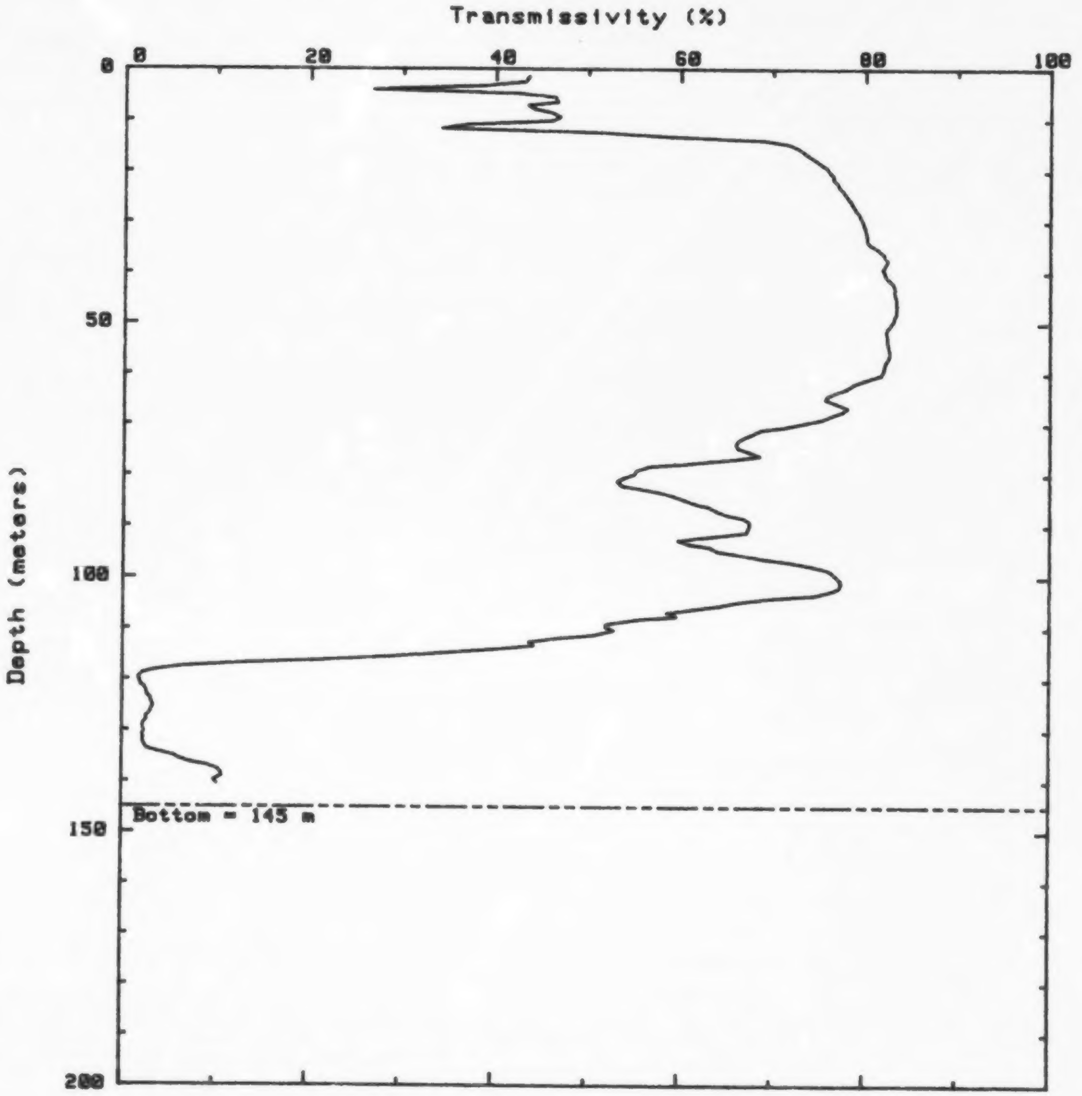
Survey Area : ALICE ARM
Station : M-9

Date : 82/07/11
Time : 1829 PDT



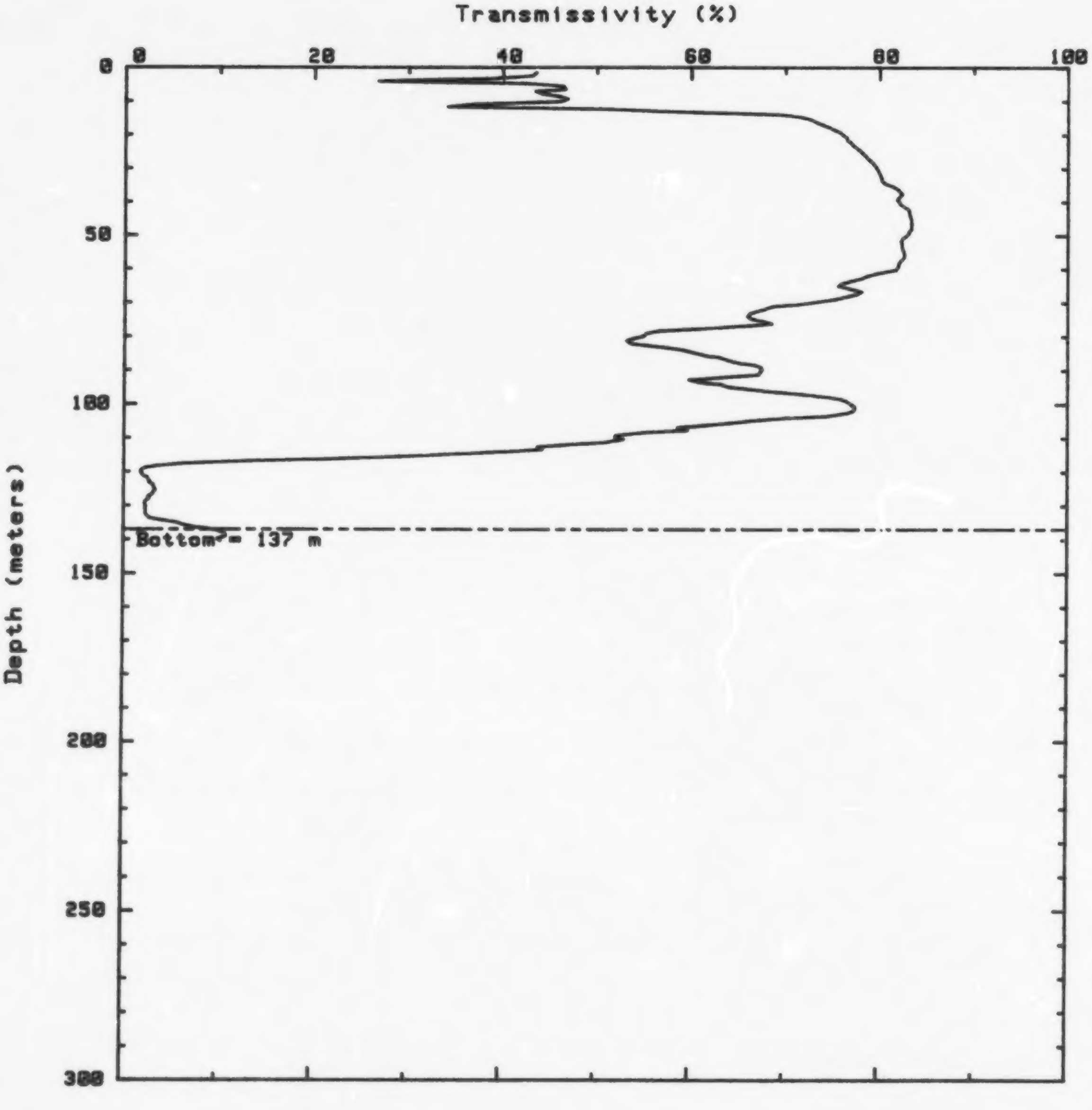
Survey Area : ALICE ARM
Station : M-9

Date : 82/07/12
Time : 2323 PDT



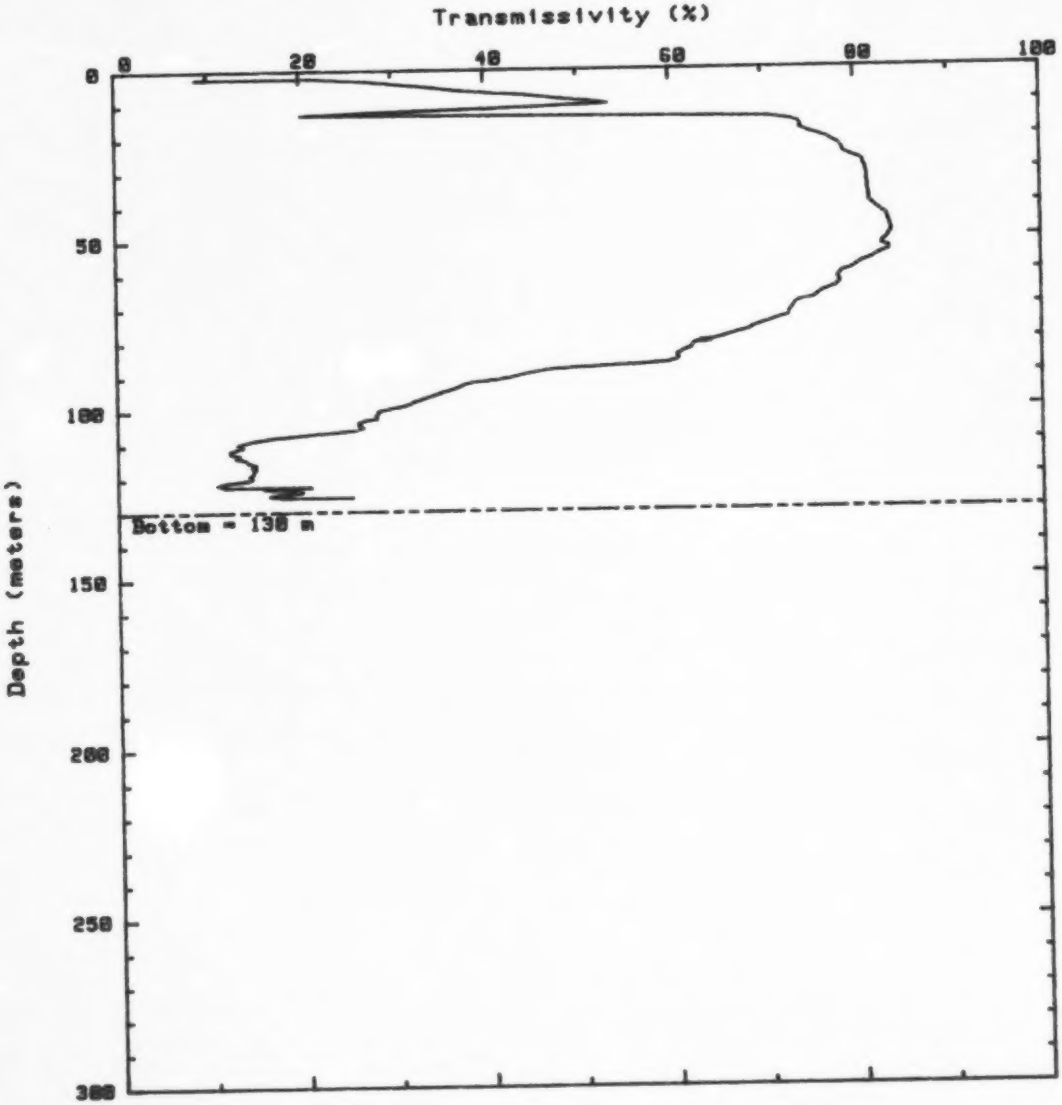
Survey Area : ALICE ARM
Station : M-9

Date : 82/07/12
Time : 2323 PDT



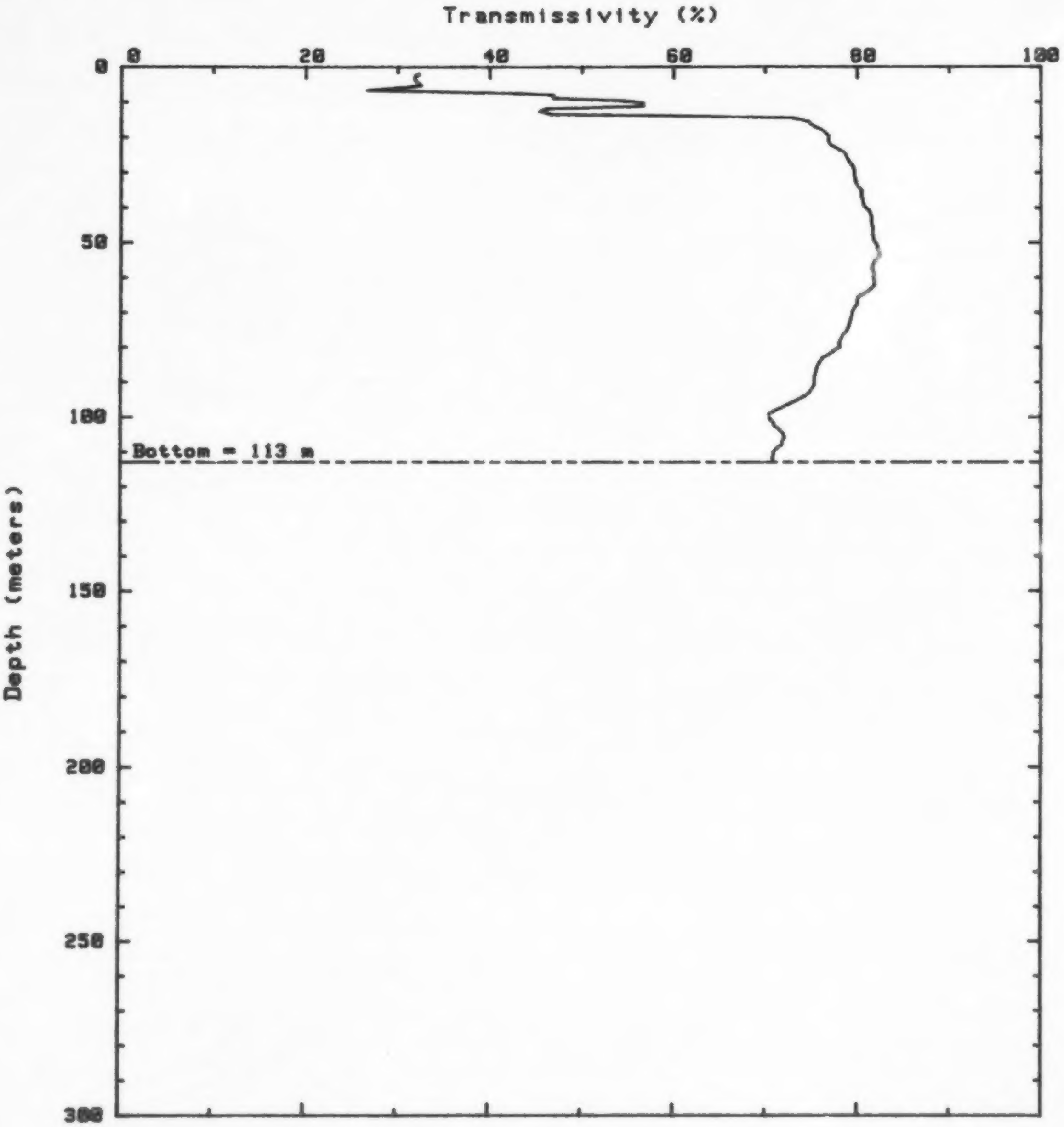
Survey Area : ALICE ARM
Station : L-10

Date : 82/07/08
Time : 2055 PDT



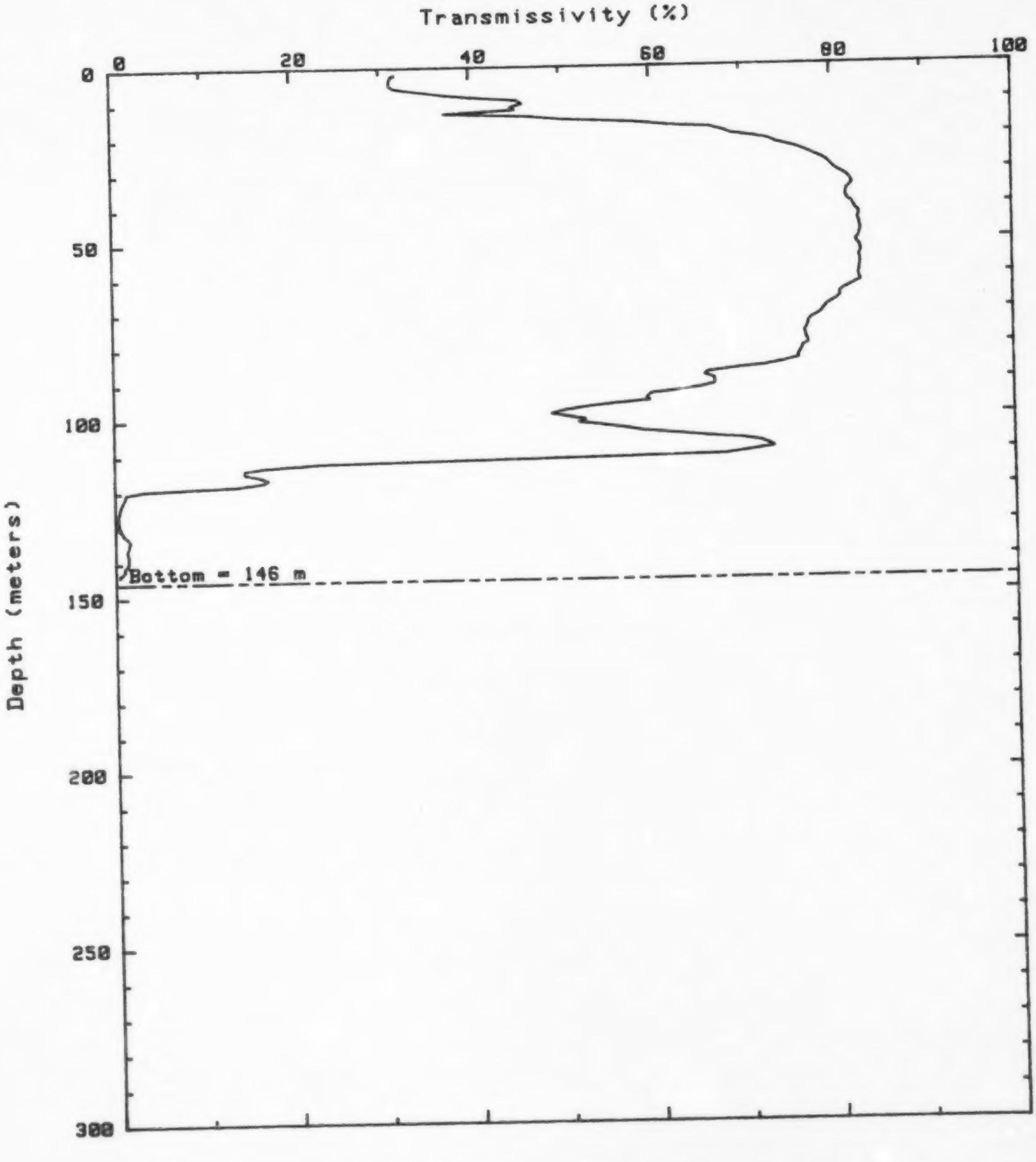
Survey Area : ALICE ARM
Station : L-10

Date : 82/07/11
Time : 0040 PDT



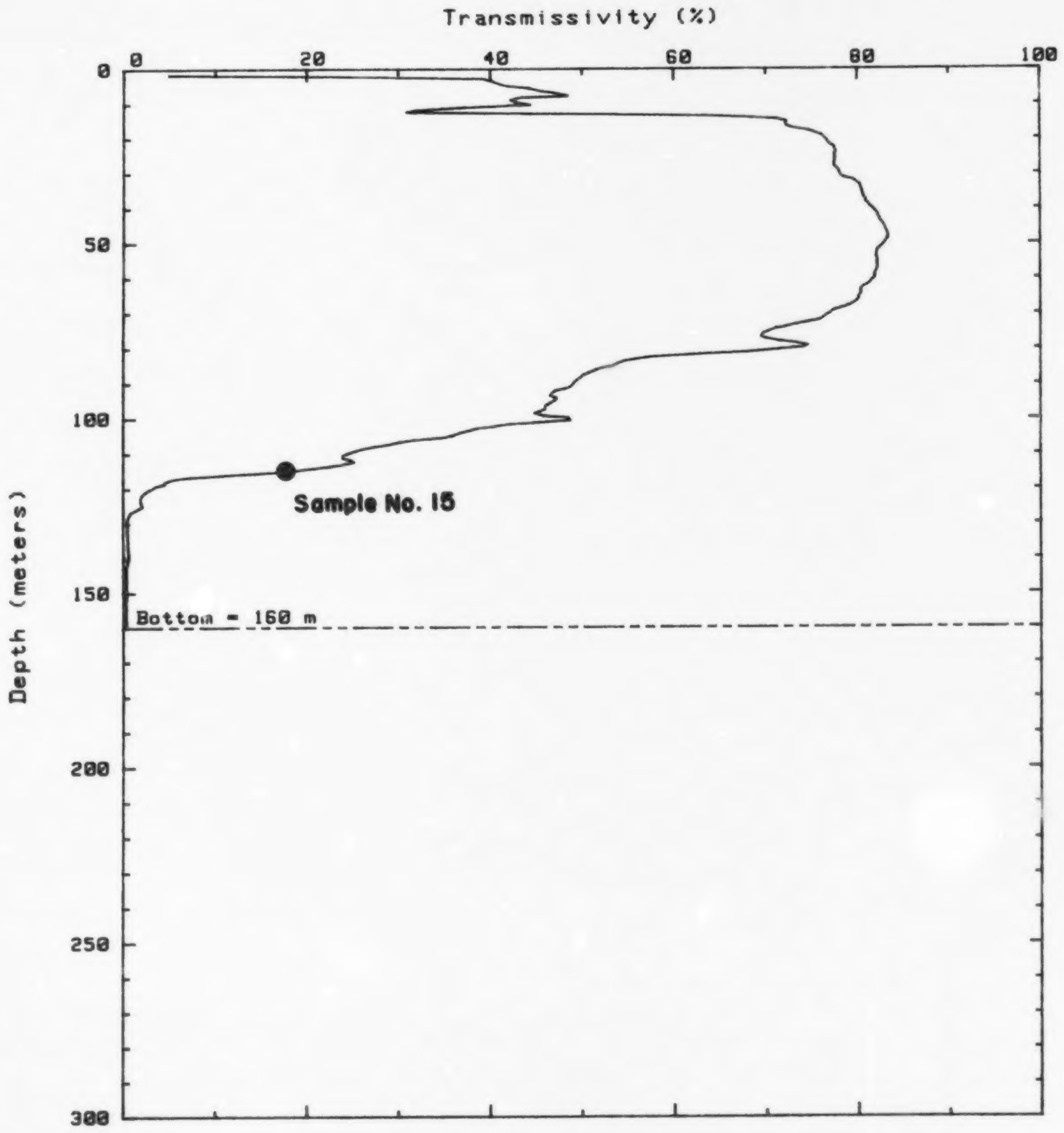
Survey Area : ALICE ARM
Station : L-10

Date : 82/07/11
Time : 1853 PDT



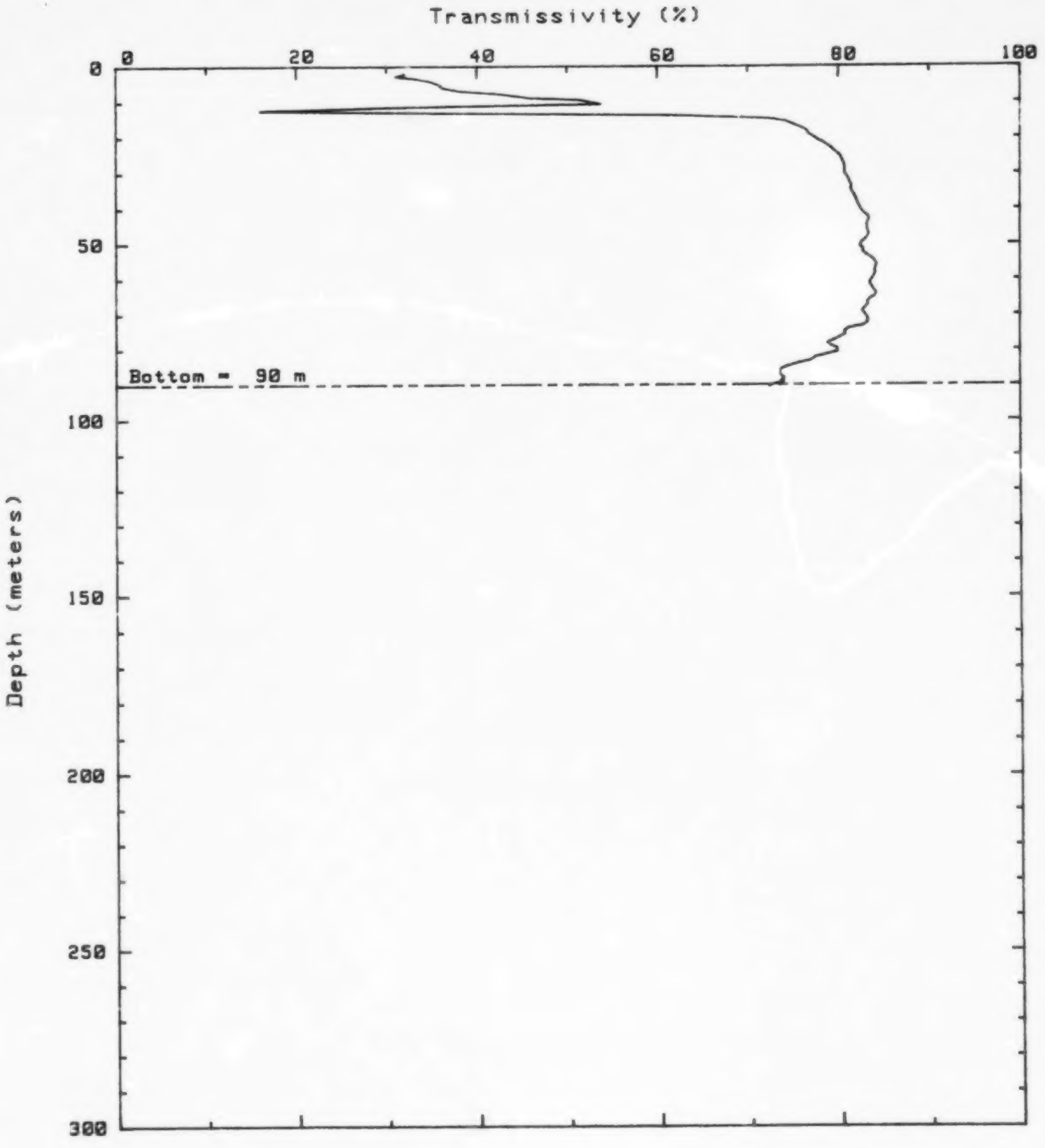
Survey Area : ALICE ARM
Station : L-10

Date : 82/07/12
Time : 2352 PDT



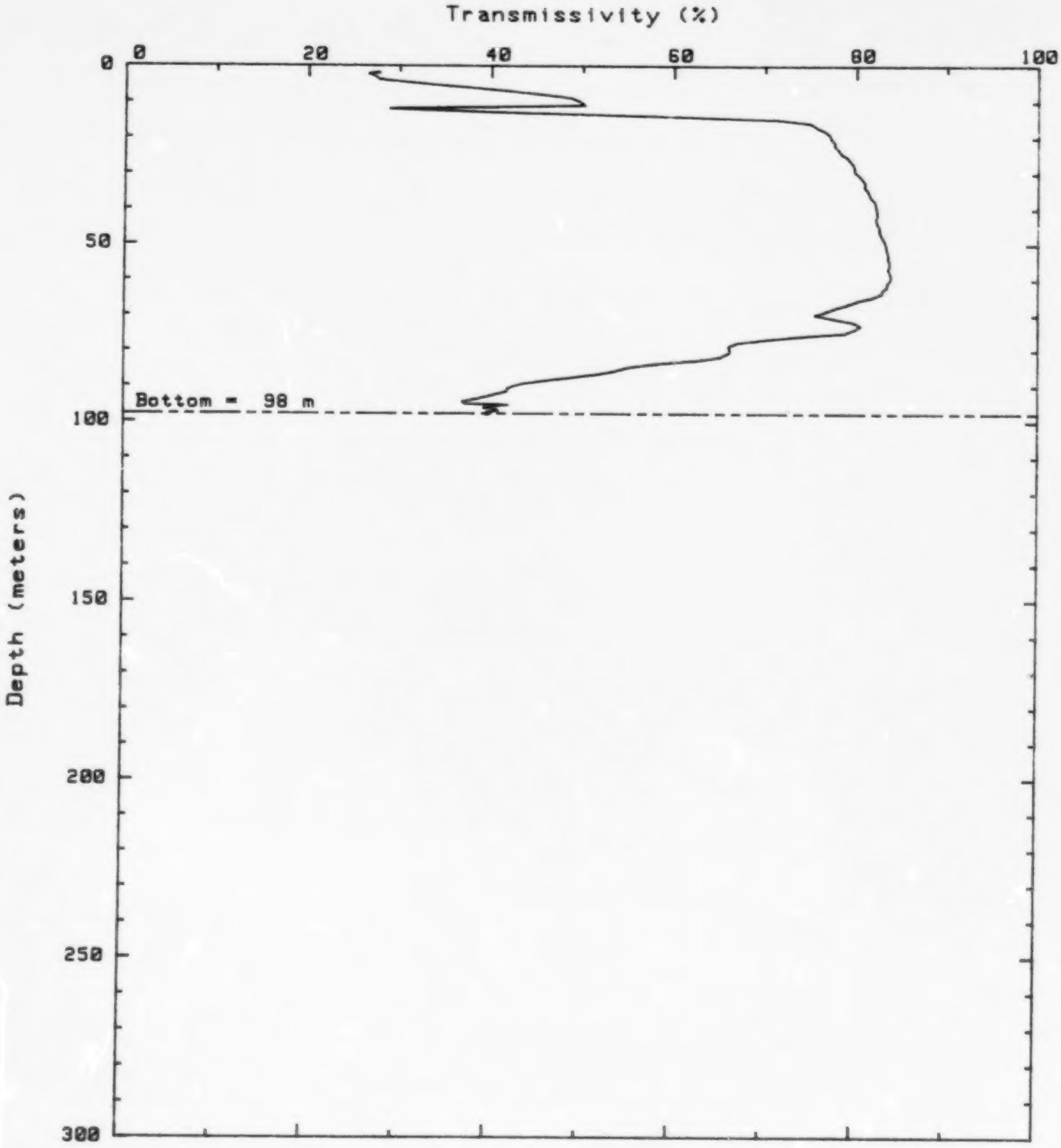
Survey Area : ALICE ARM
Station : O-10

Date : 82/07/08
Time : 2219 PDT



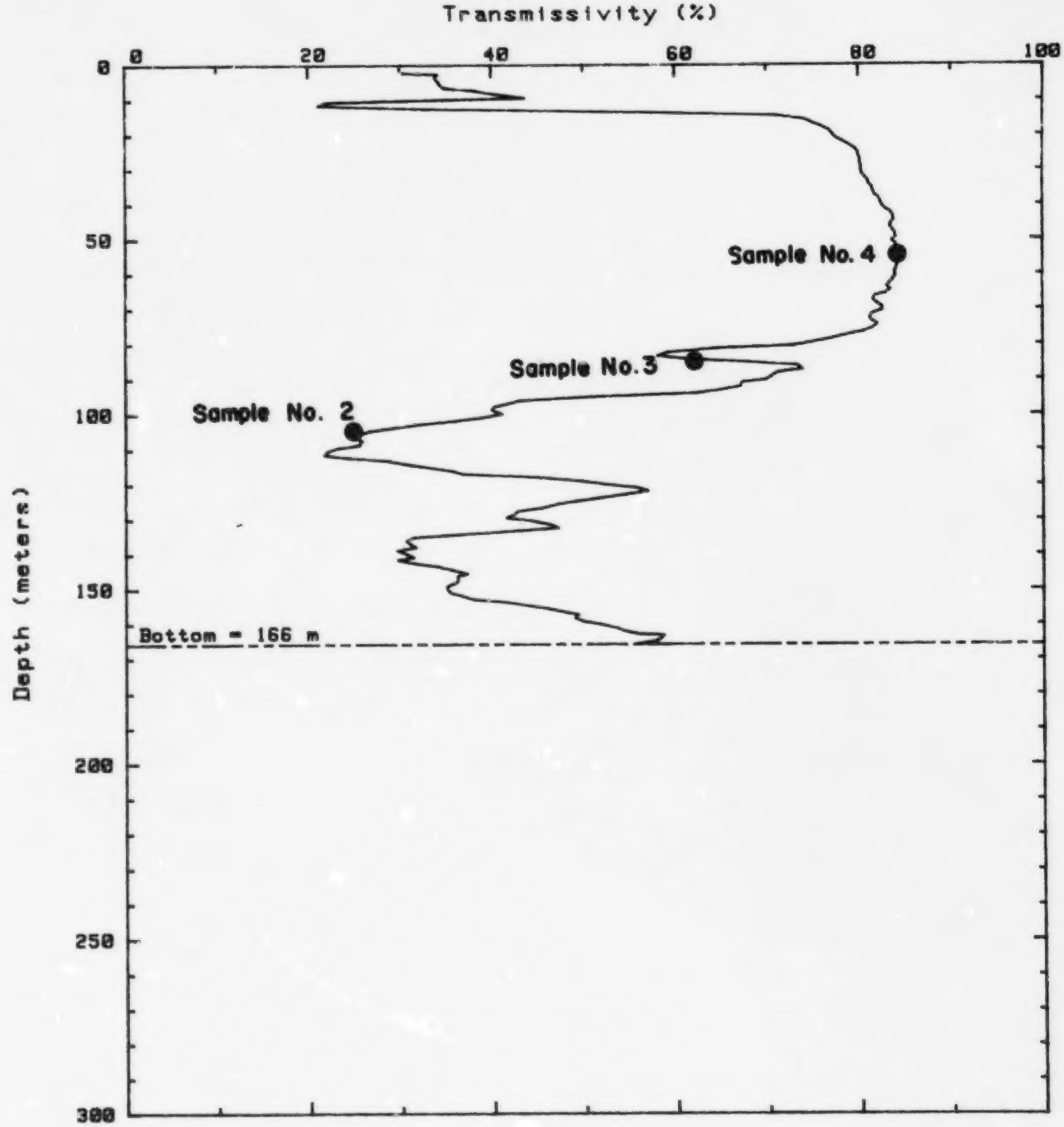
Survey Area : ALICE ARM
Station : M-12

Date : 82/07/08
Time : 2119 PDT



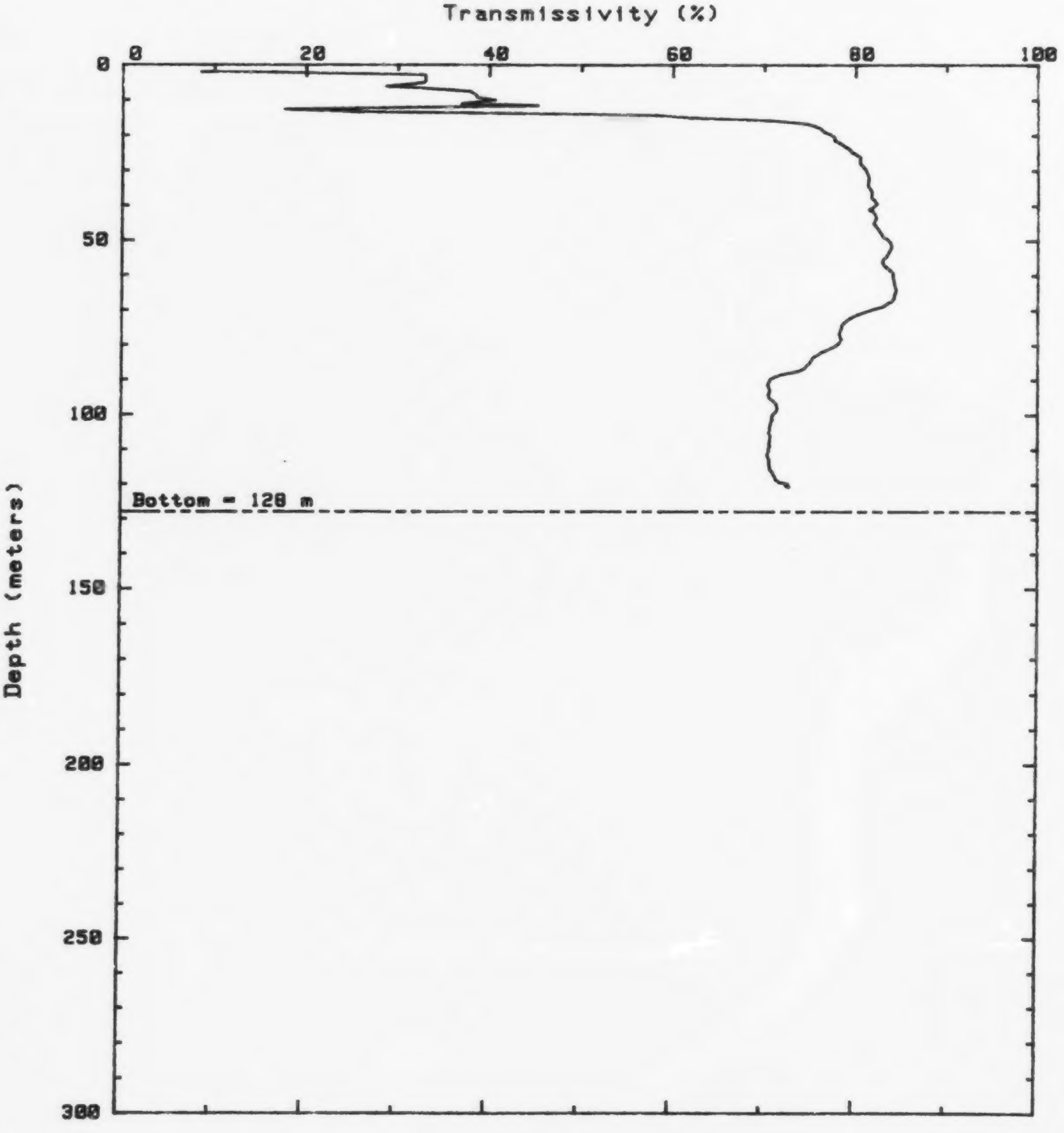
Survey Area : ALICE ARM
Station : N-11

Date : 82/07/08
Time : 2132 PDT



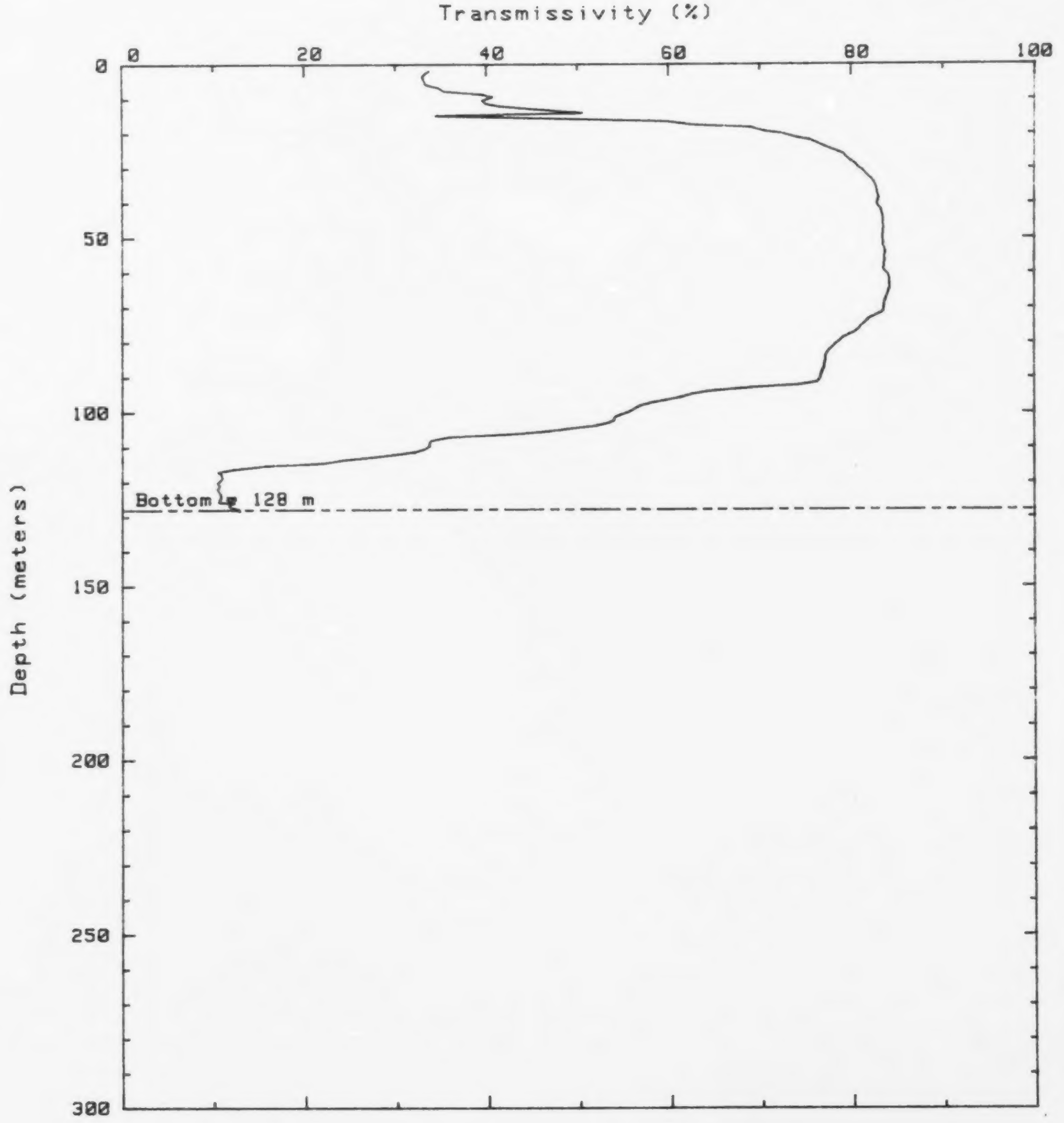
Survey Area : ALICE ARM
Station : N-14

Date : 82/07/10
Time : 2346 PDT



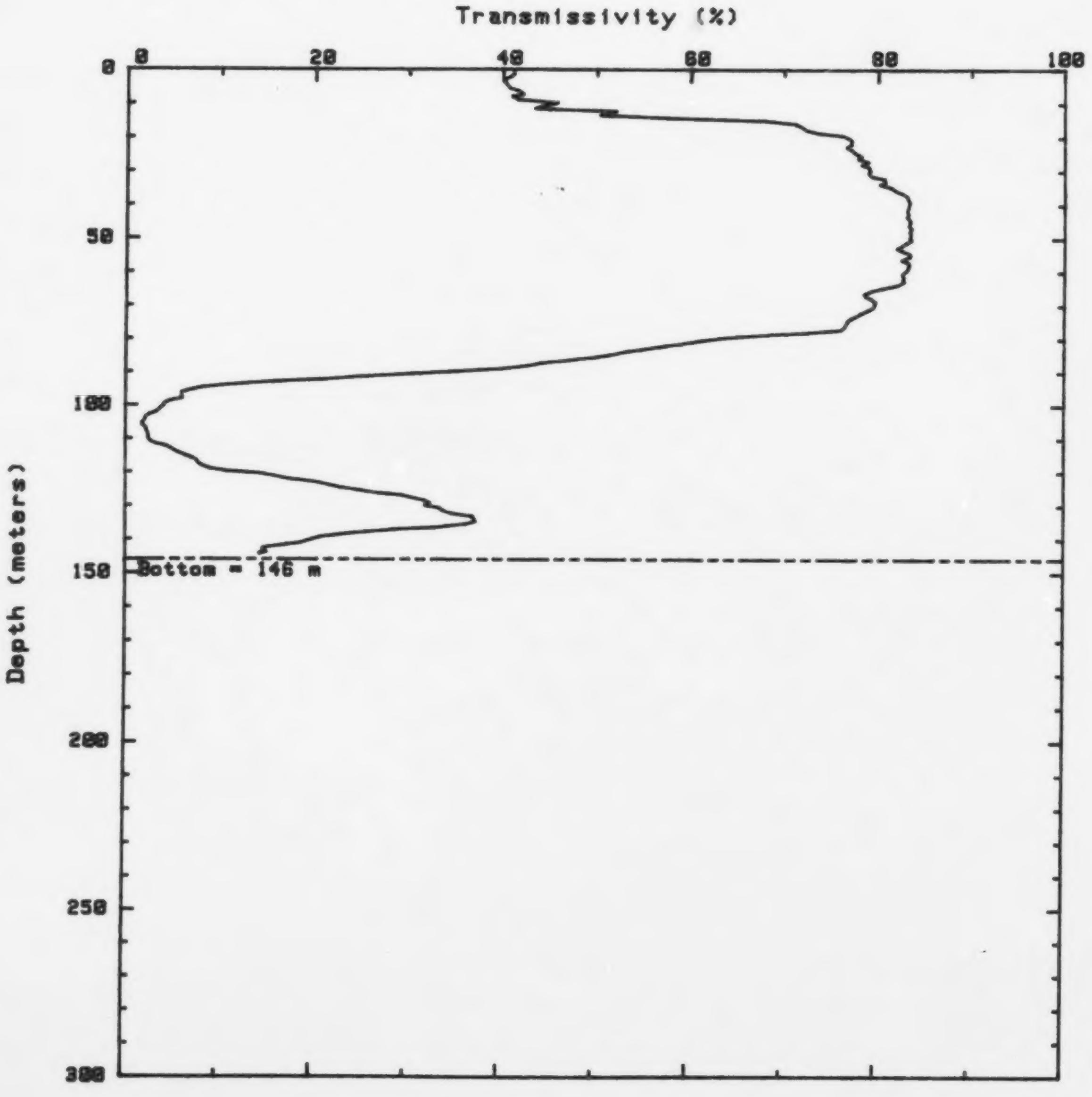
Survey Area : ALICE ARM
Station : N-14

Date : 82/07/11
Time : 1913 PDT



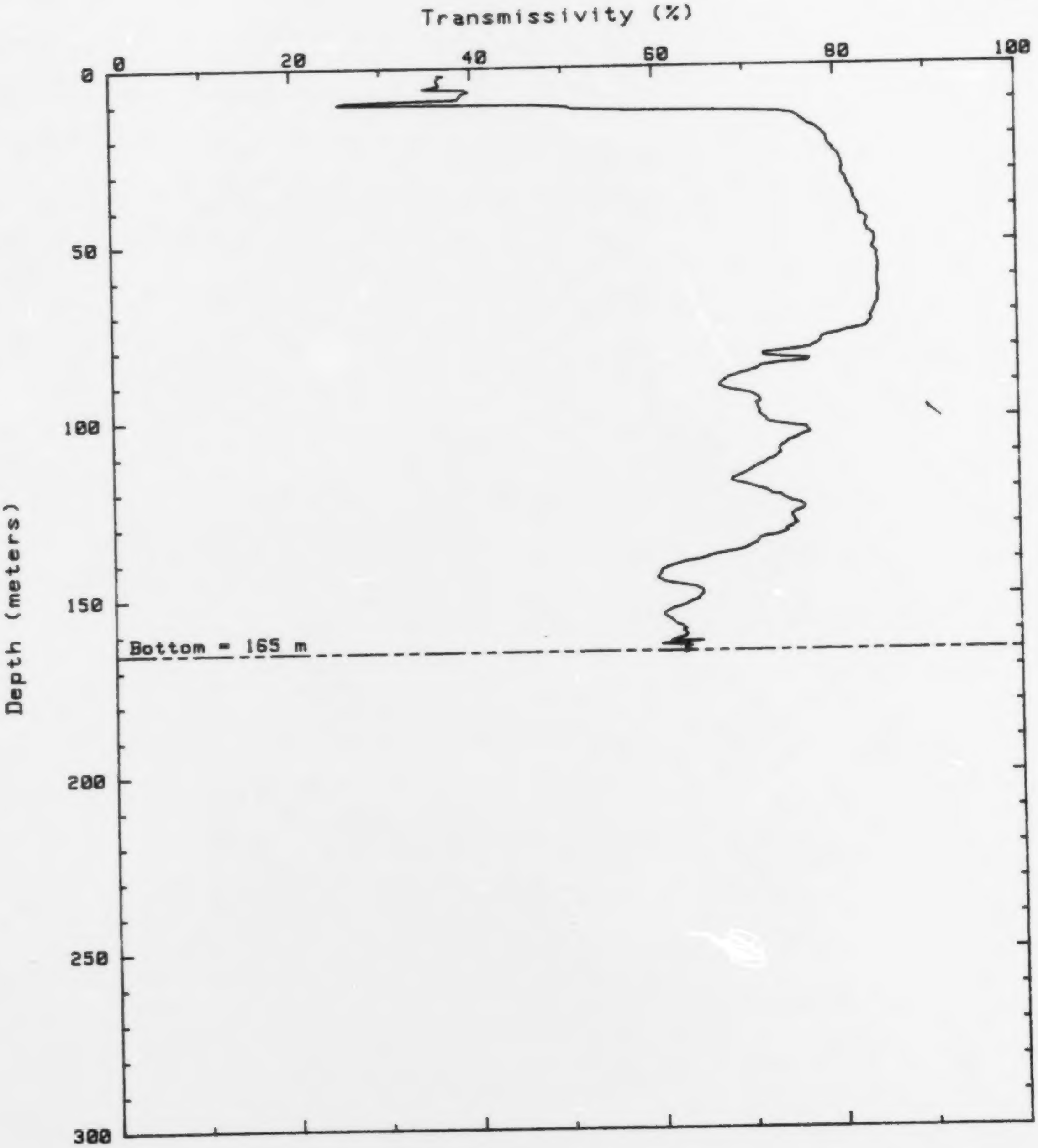
Survey Area : ALICE ARM
Station : N-14

Date : 82/07/12
Time : 2226 PDT



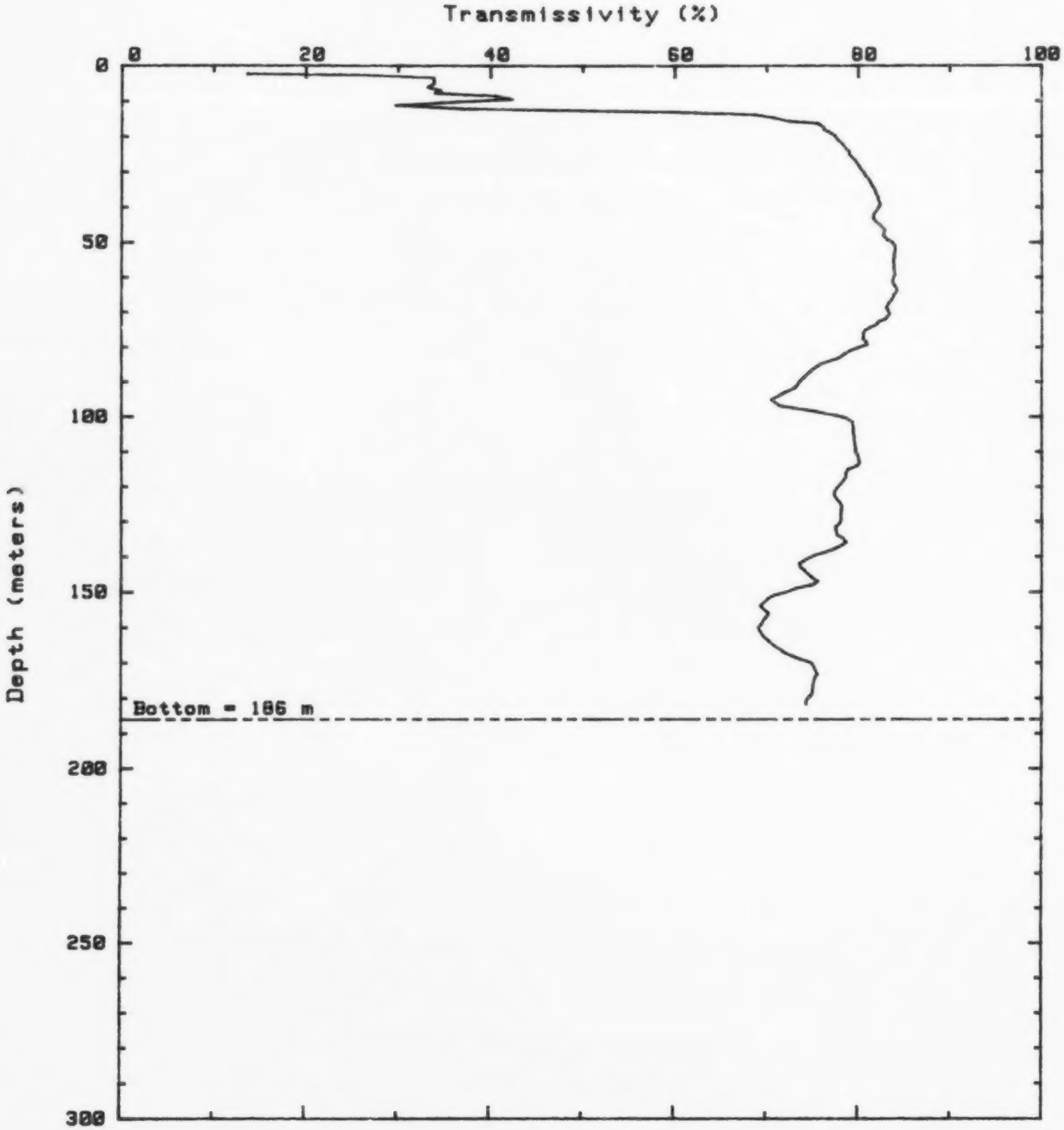
Survey Area : ALICE ARM
Station : P-12

Date : 82/07/08
Time : 2230 PDT



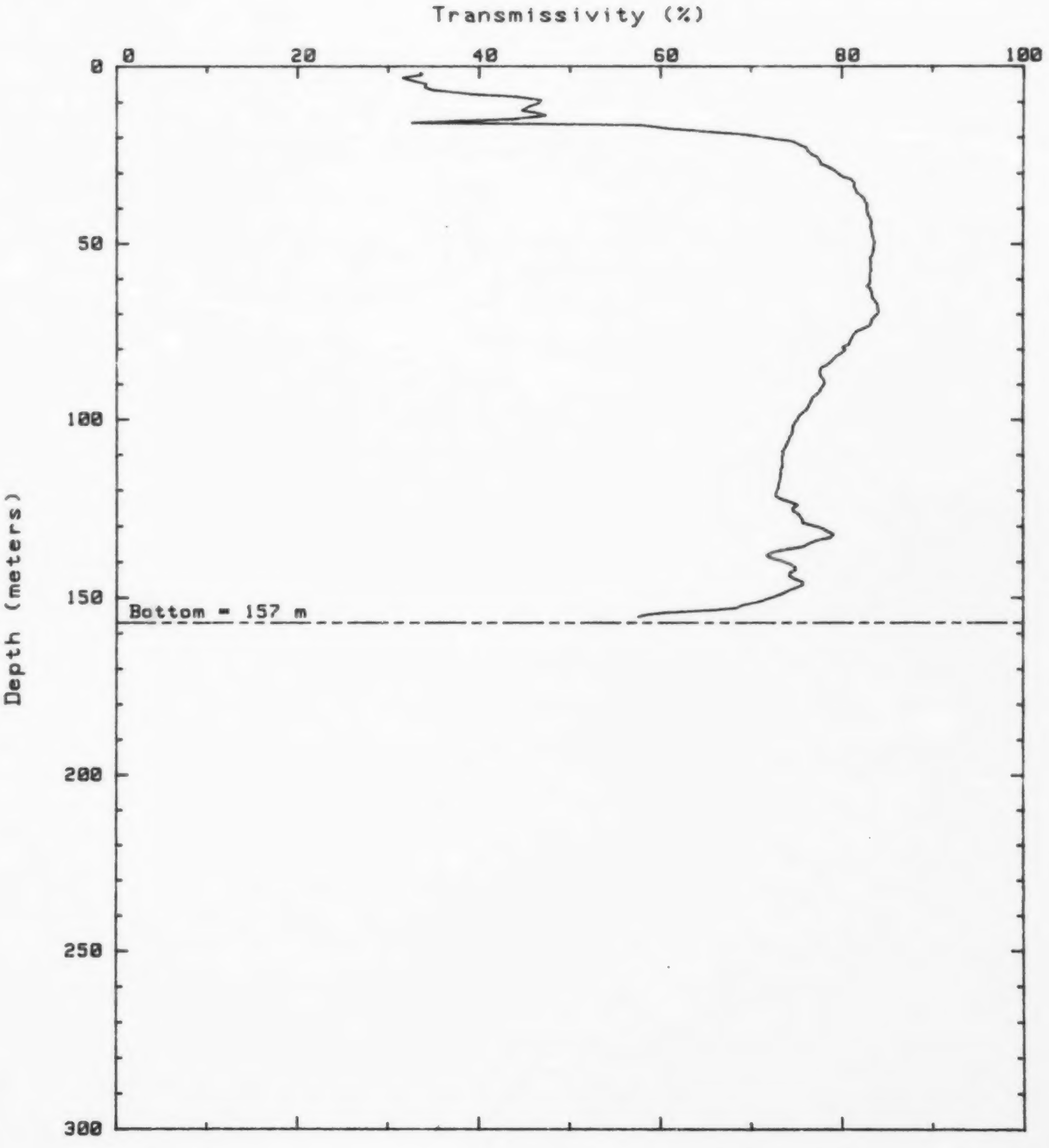
Survey Area : ALICE ARM
Station : P-12

Date : 82/07/11
Time : 0014 PDT



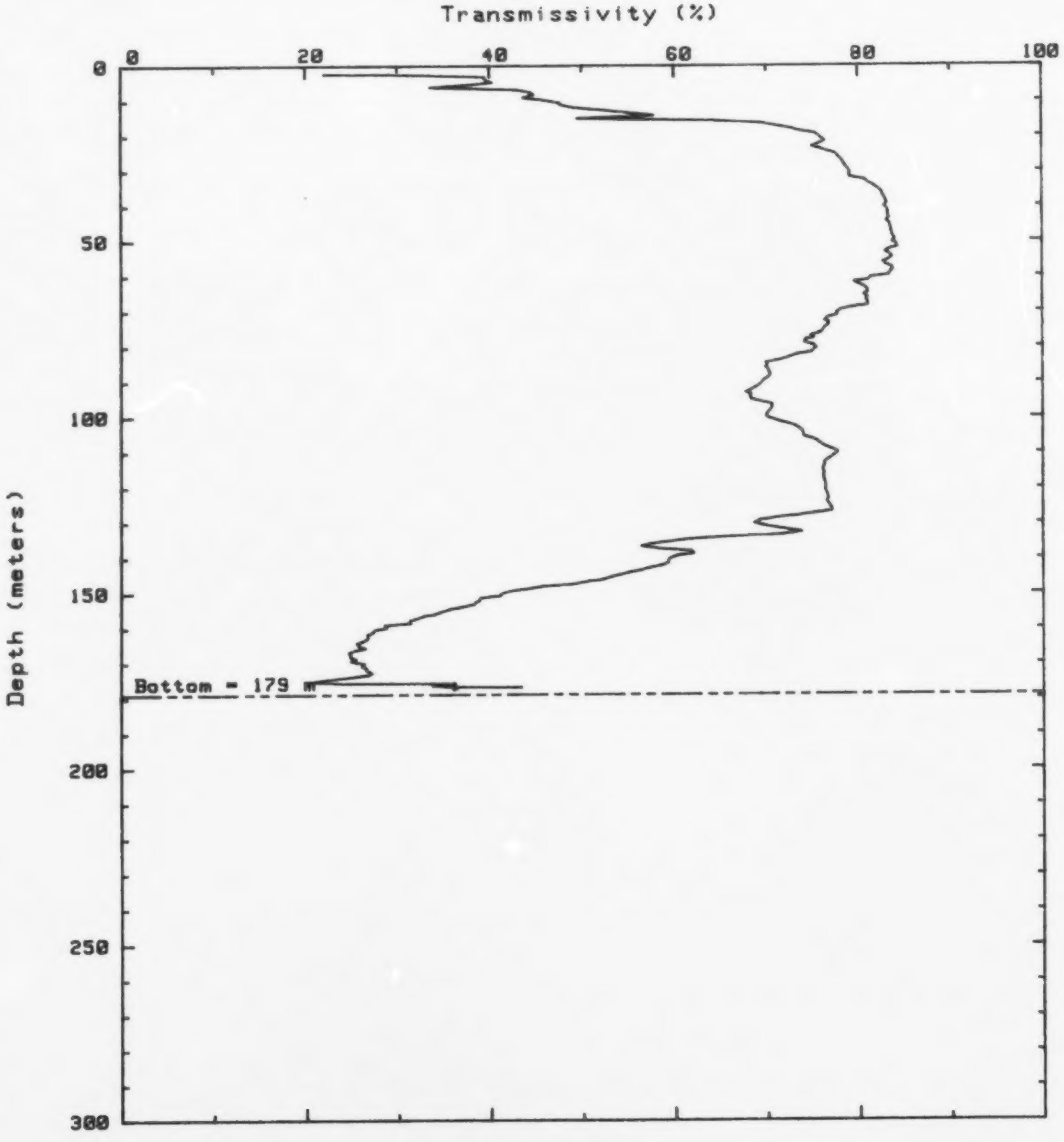
Survey Area : ALICE ARM
Station : P-12

Date : 82/07/11
Time : 1930 PDT



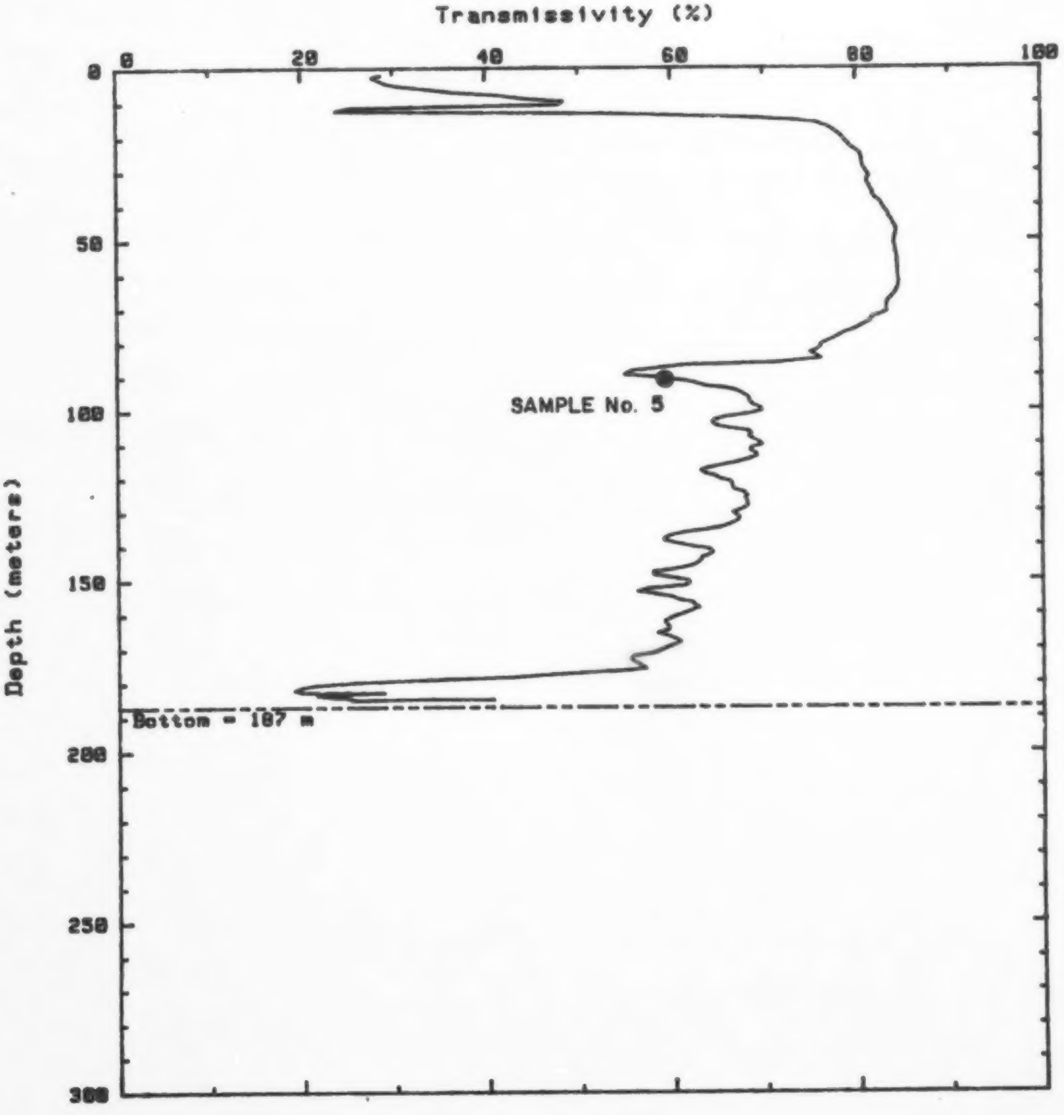
Survey Area : ALICE ARM
Station : P-12

Date : 82/07/12
Time : 2254 PDT



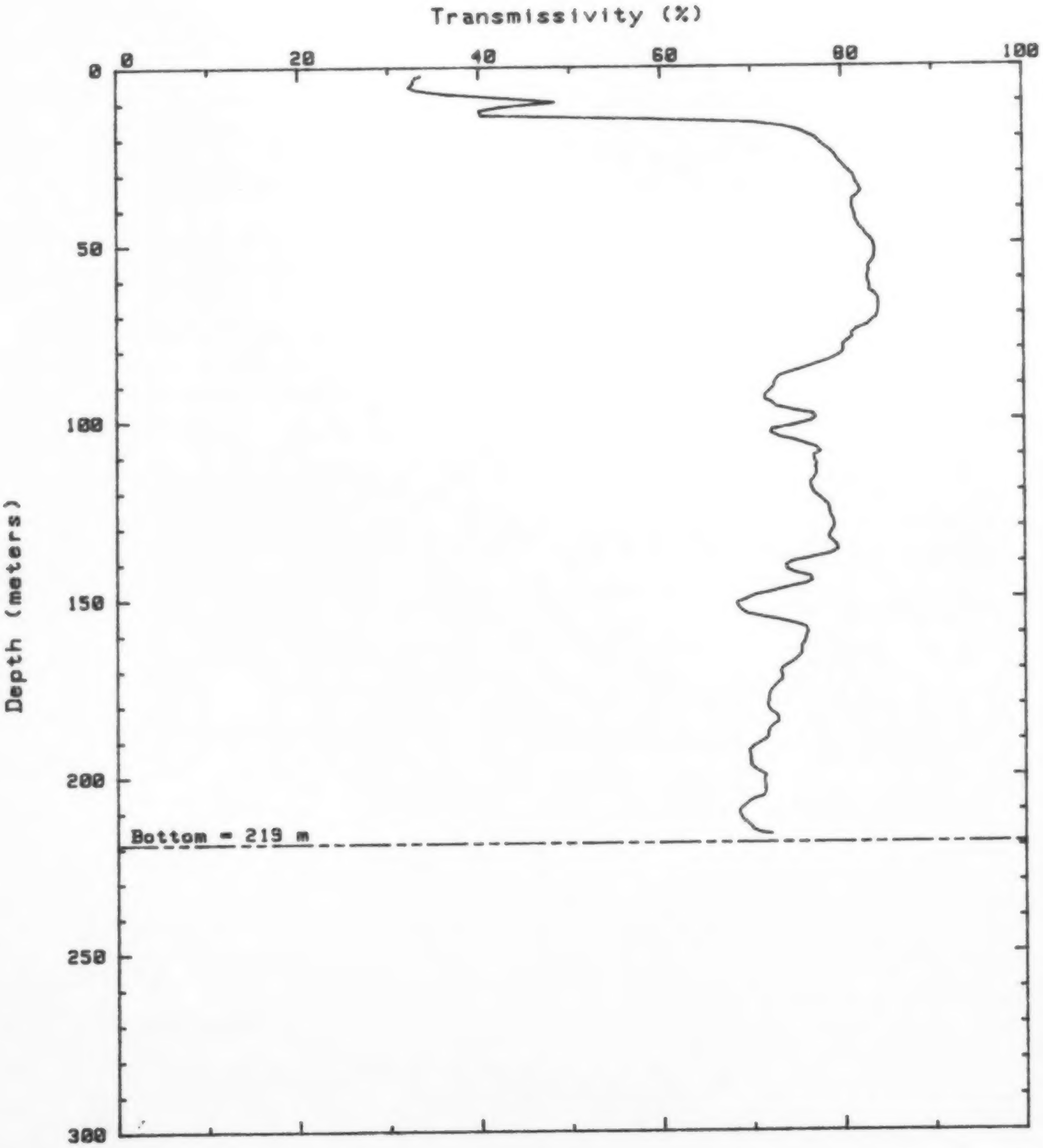
Survey Area : ALICE ARM
Station : 0-13

Date : 82/07/08
Time : 2300 PDT



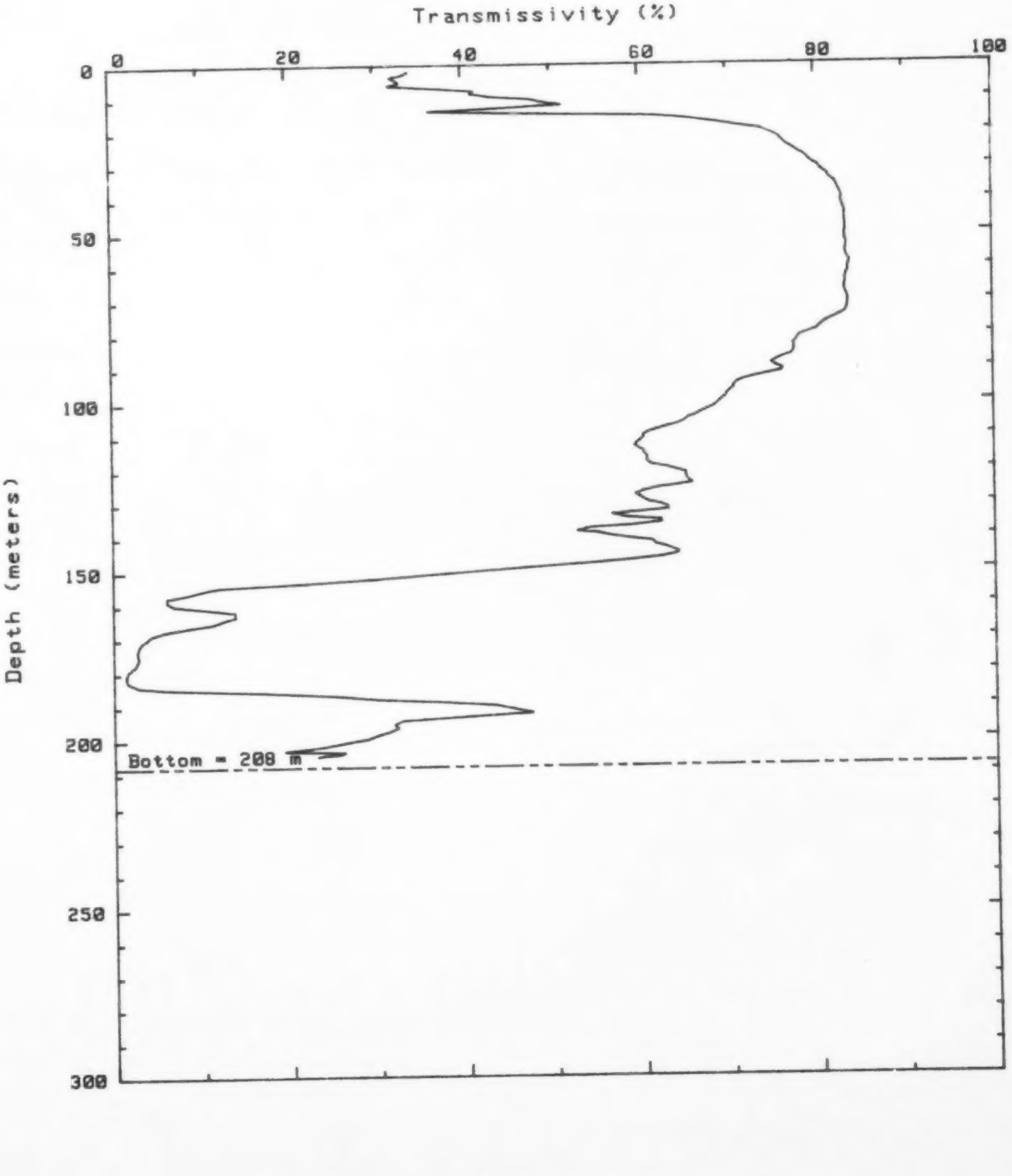
Survey Area : ALICE ARM
Station : O-13

Date : 82/07/11
Time : 0000 PDT



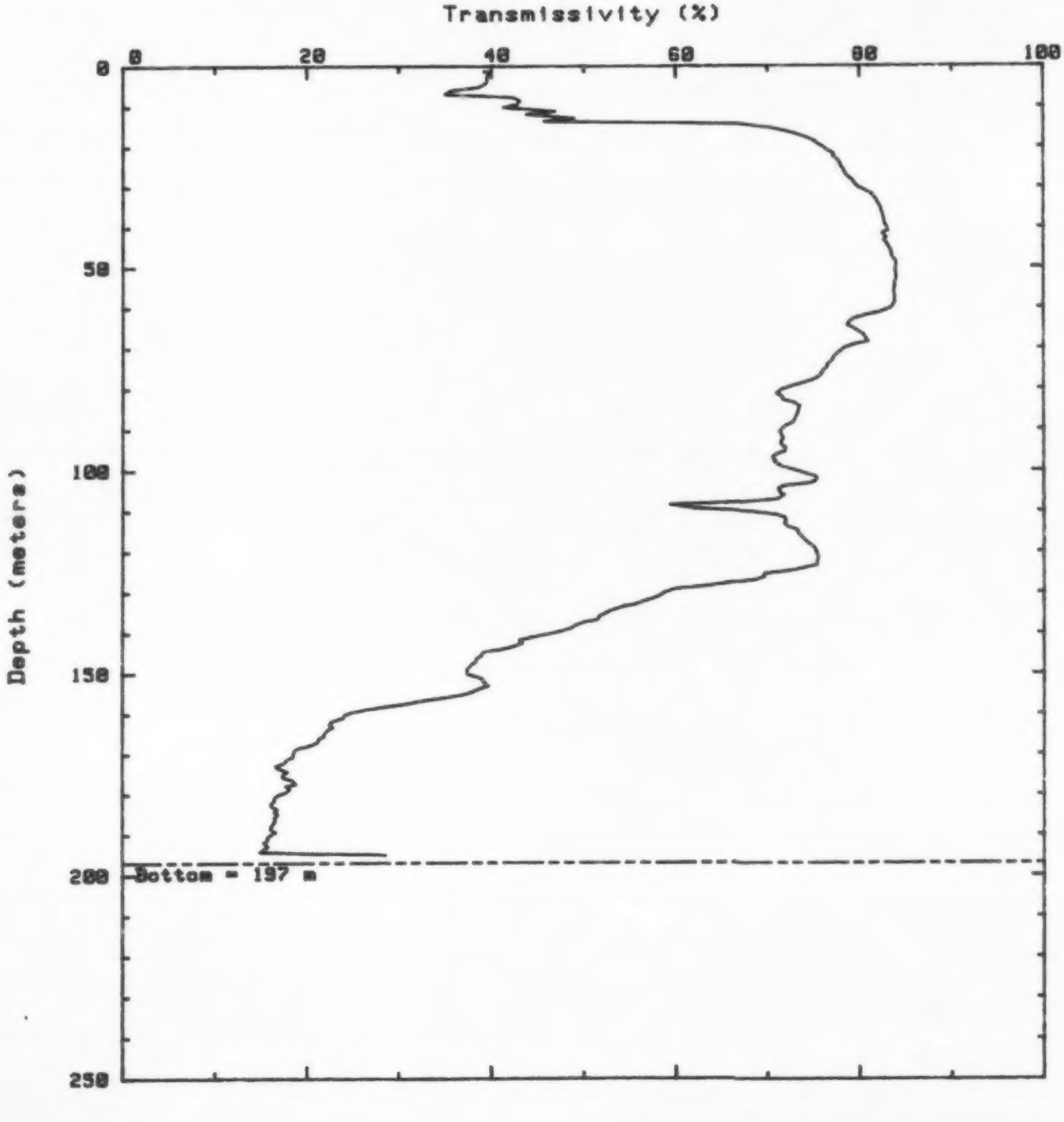
Survey Area : ALICE ARM
Station : 0-13

Date : 82/07/11
Time : 1944 PDT



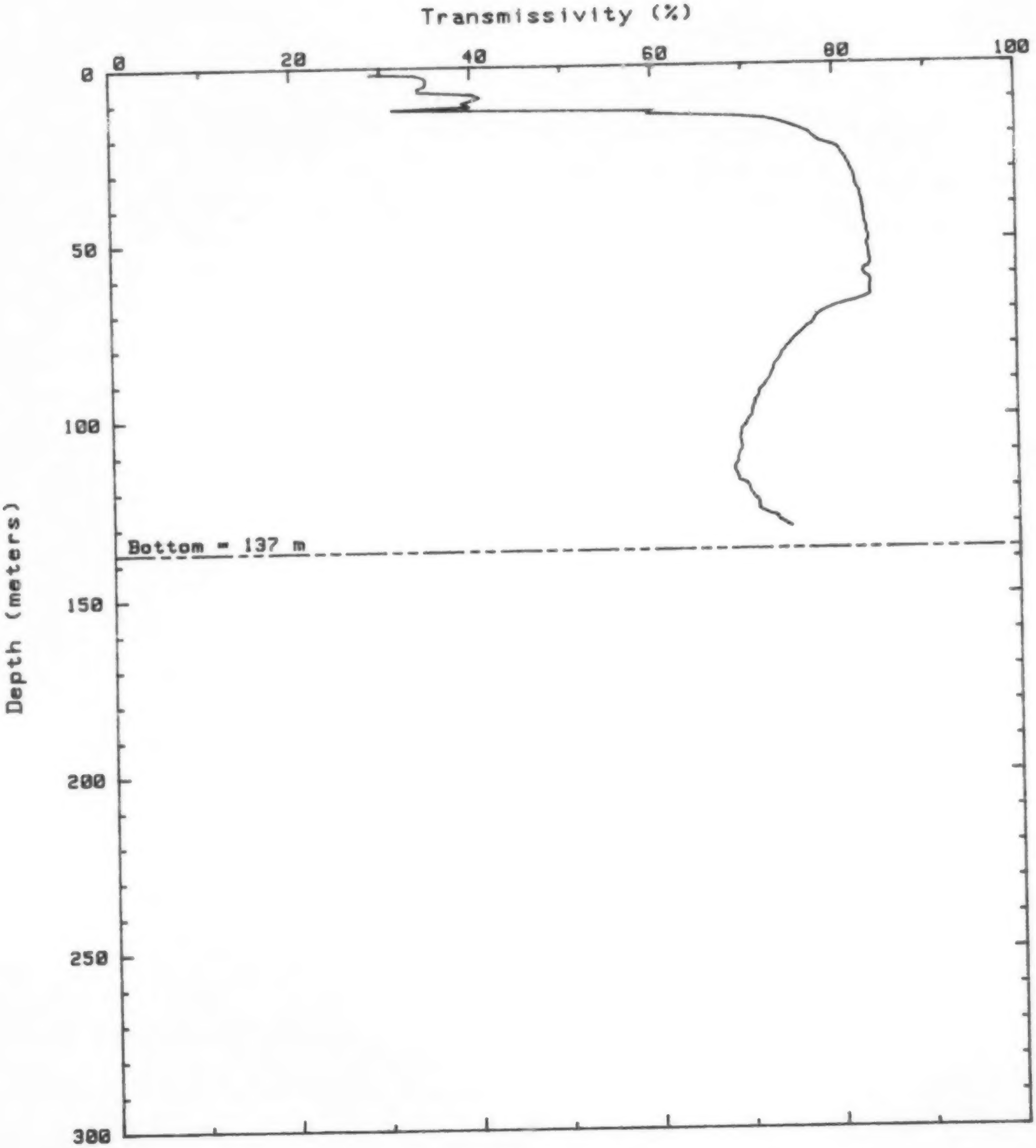
Survey Area : ALICE ARM
Station : 0-13

Date : 82/07/12
Time : 2241 PDT



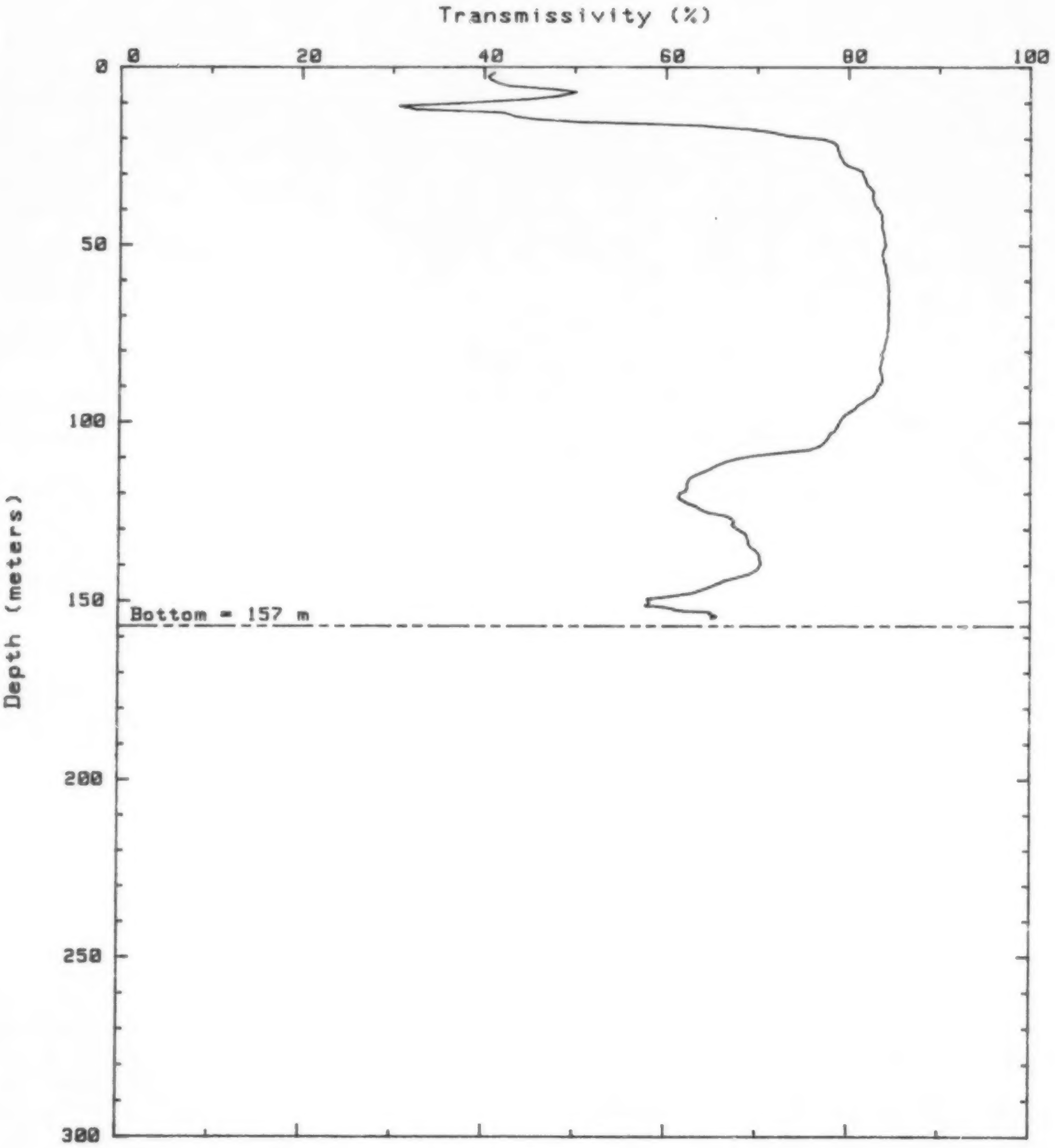
Survey Area : ALICE ARM
Station : O-20

Date : 82/07/10
Time : 2333 PDT



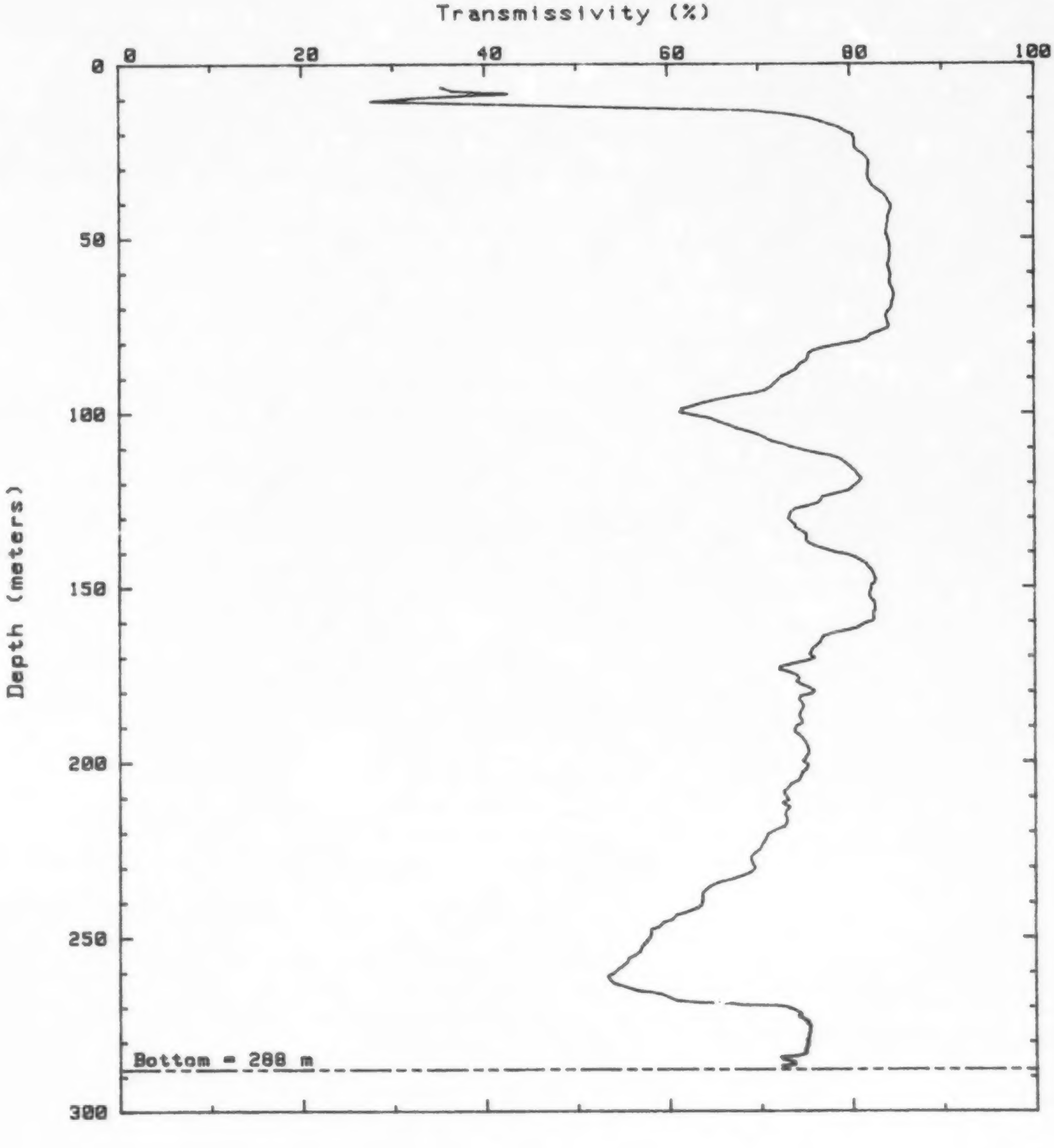
Survey Area : ALICE ARM
Station : O-20

Date : 82/07/12
Time : 1807 PDT



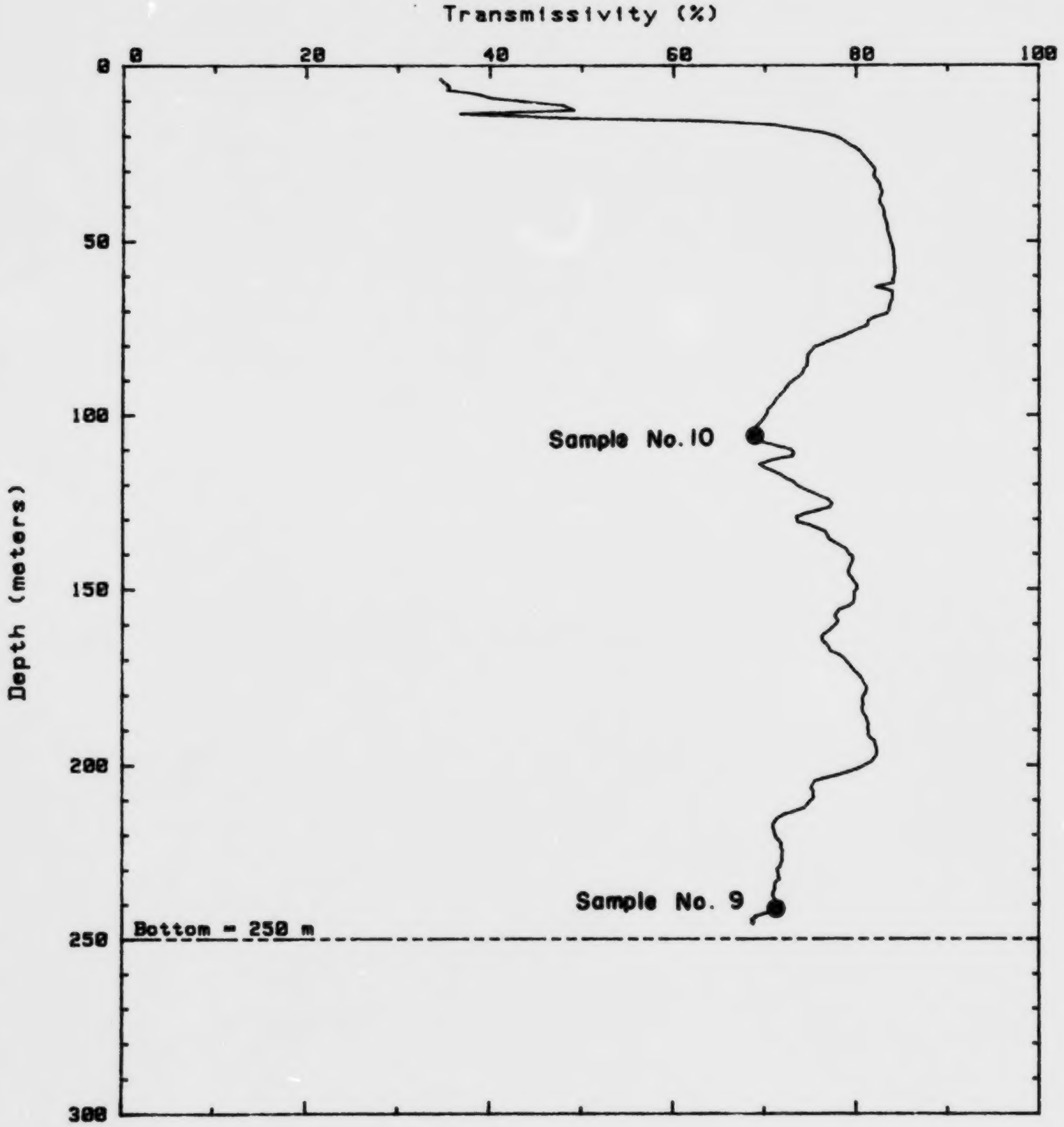
Survey Area : ALICE ARM
Station : Q-20

Date : 82/07/08
Time : 2319 PDT



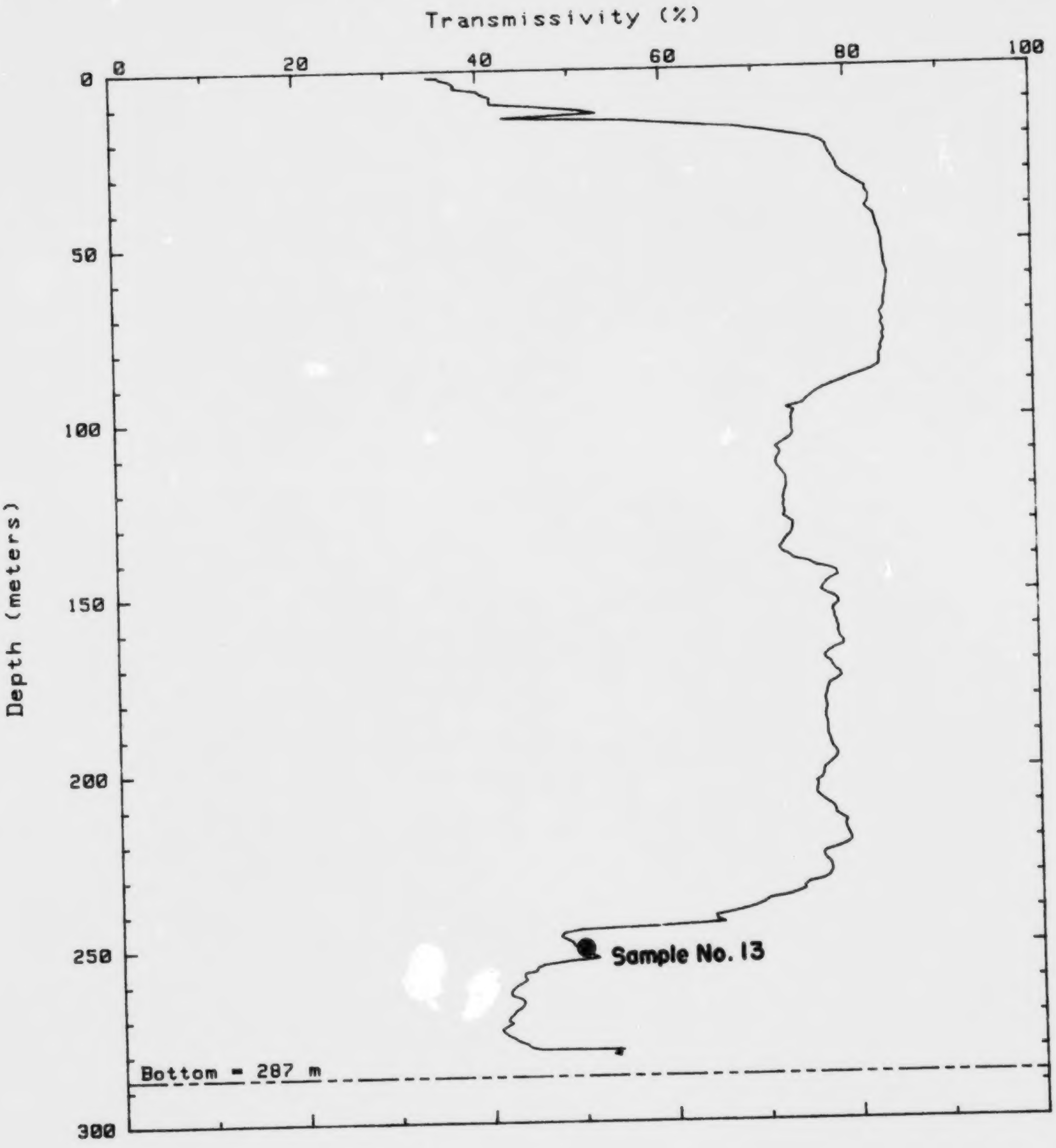
Survey Area : ALICE ARM
Station : Q-20

Date : 82/07/10
Time : 2302 PDT



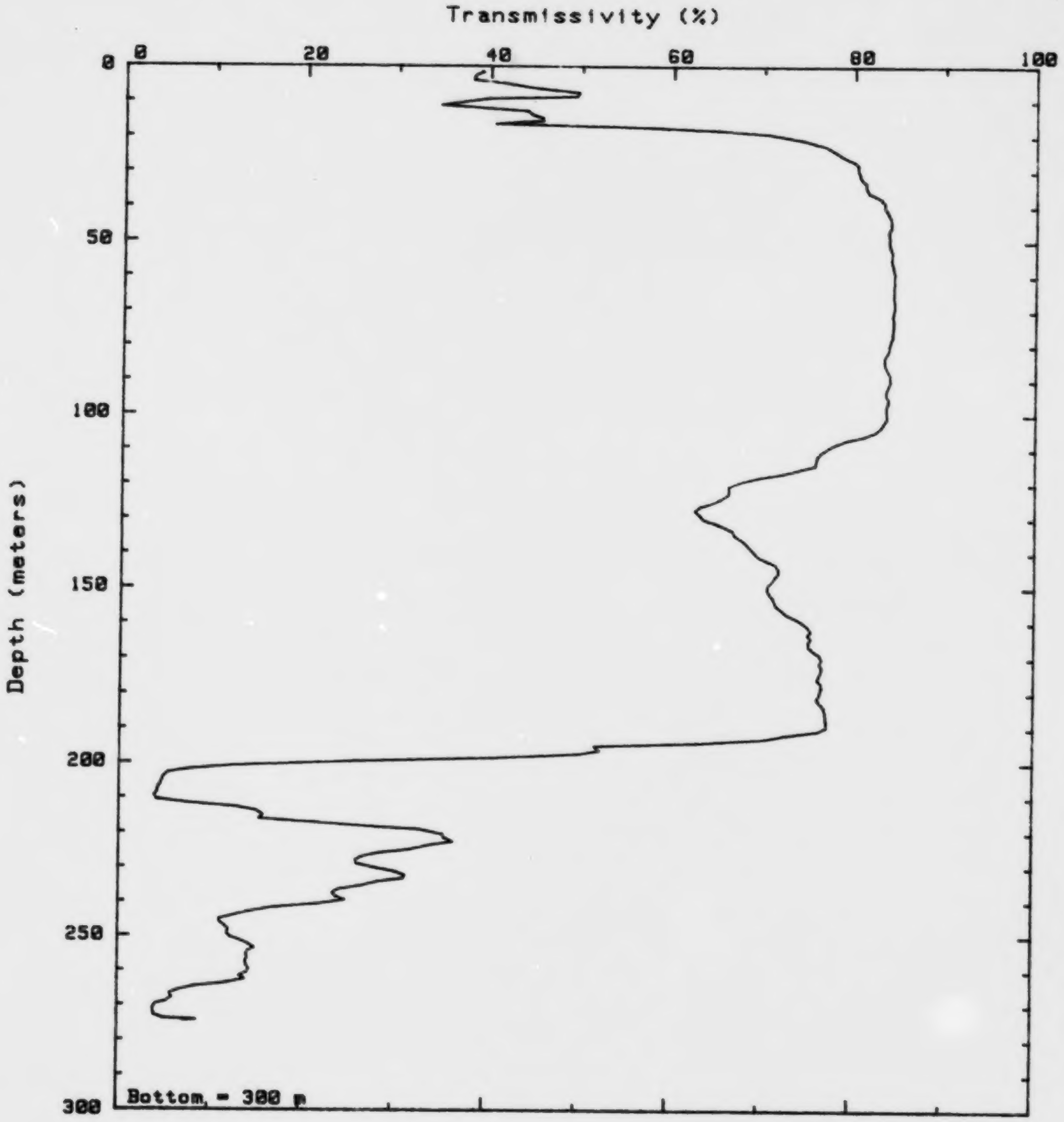
Survey Area : ALICE ARM
Station : Q-20

Date : 82/07/11
Time : 2001 PDT



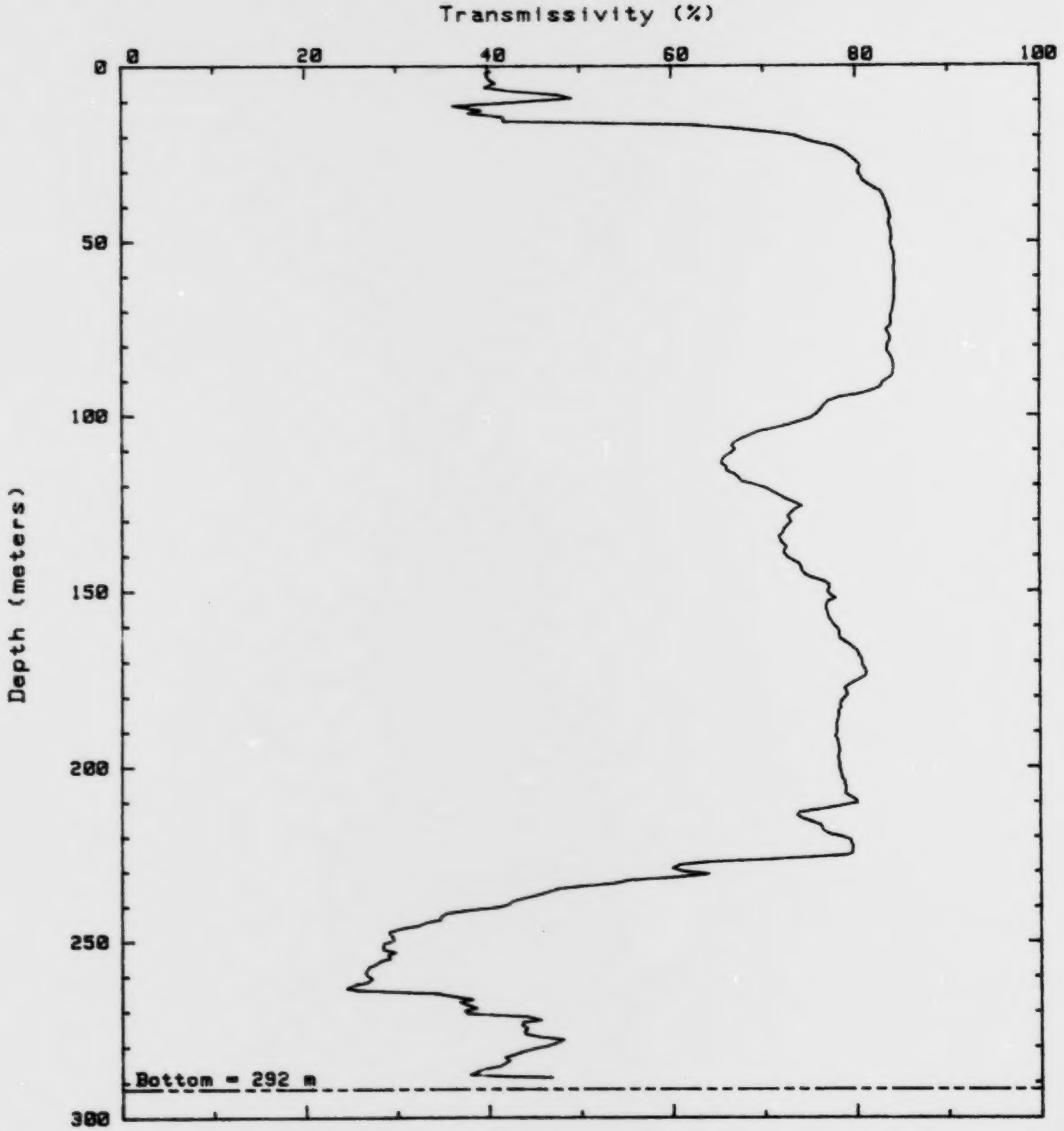
Survey Area : ALICE ARM
Station : Q-20

Date : 82/07/12
Time : 1828 PDT



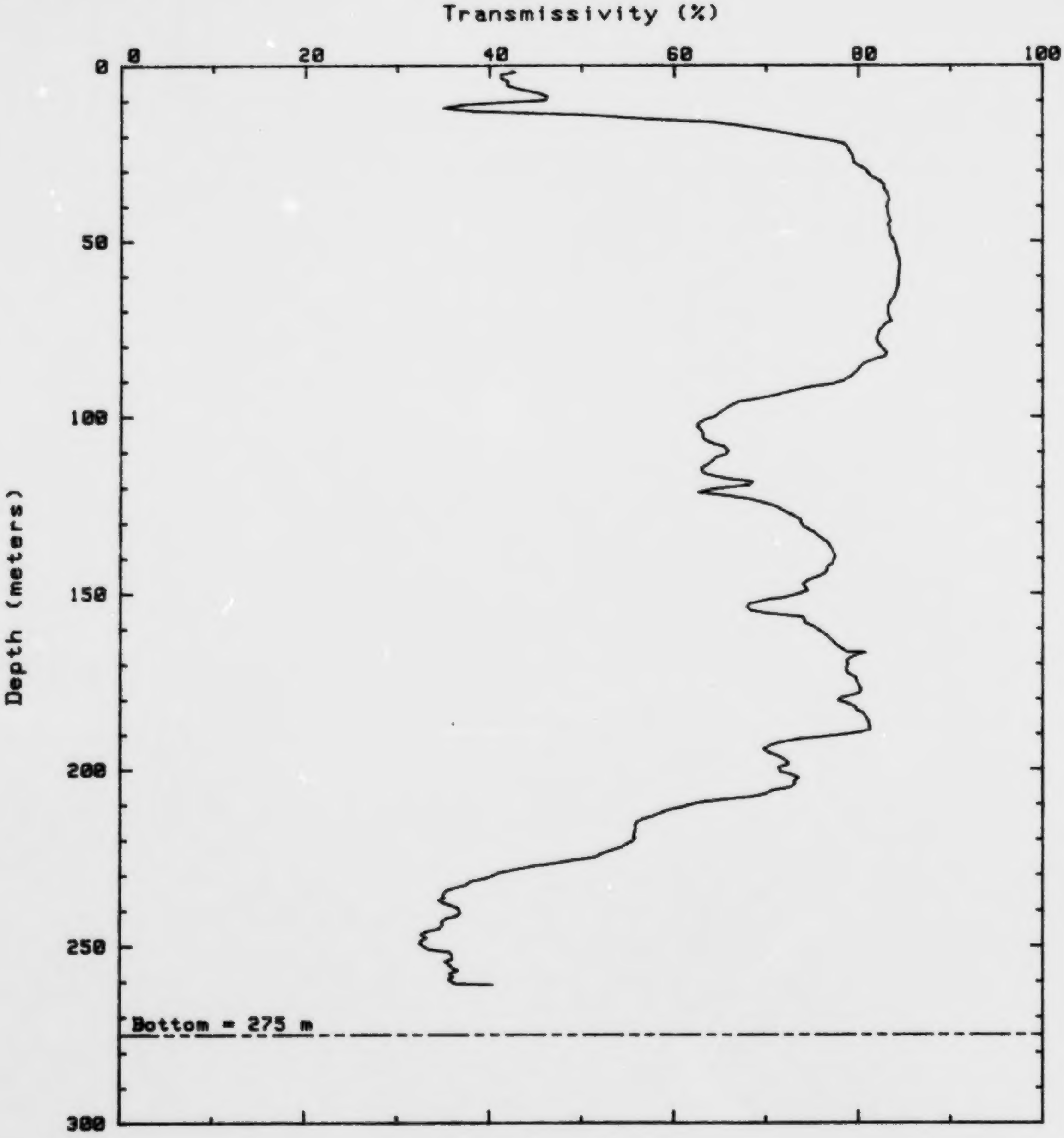
Survey Area : ALICE ARM
Station : Q-20

Date : 82/07/12
Time : 2001 PDT



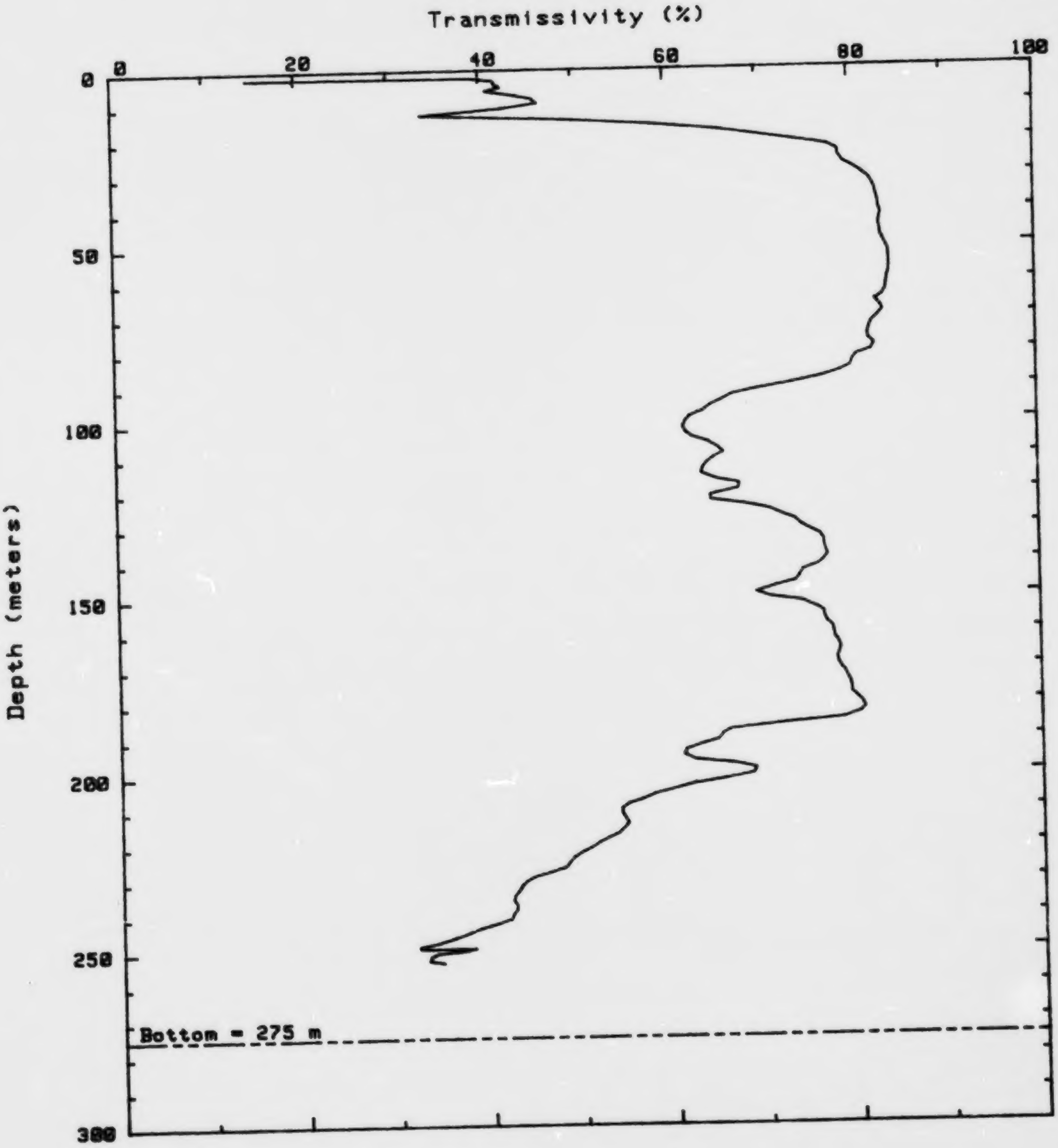
Survey Area : ALICE ARM
Station : Q-20

Date : 82/07/12
Time : 2121 PDT



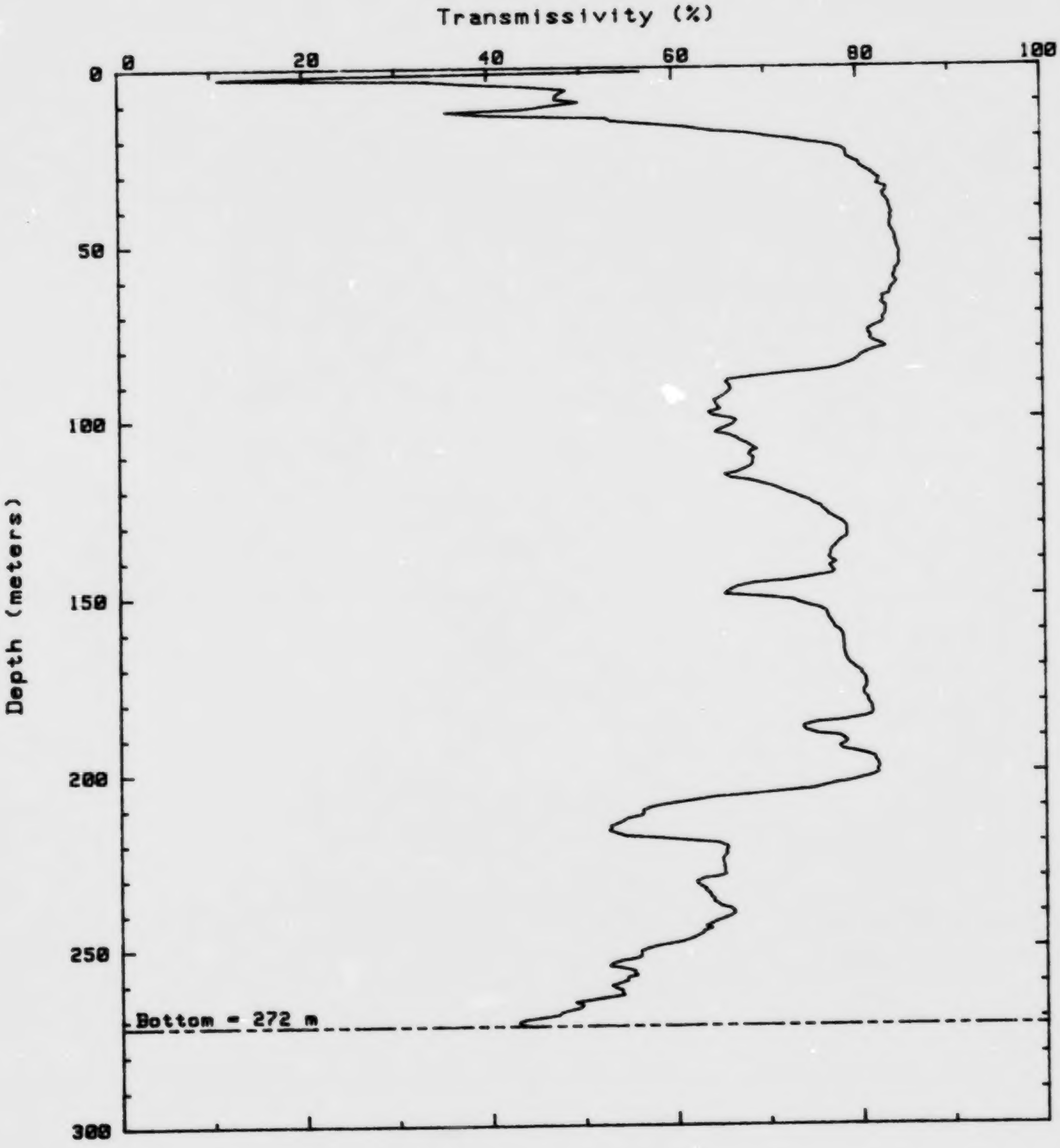
Survey Area : ALICE ARM
Station : Q-20

Date : 82/07/12
Time : 2136 PDT



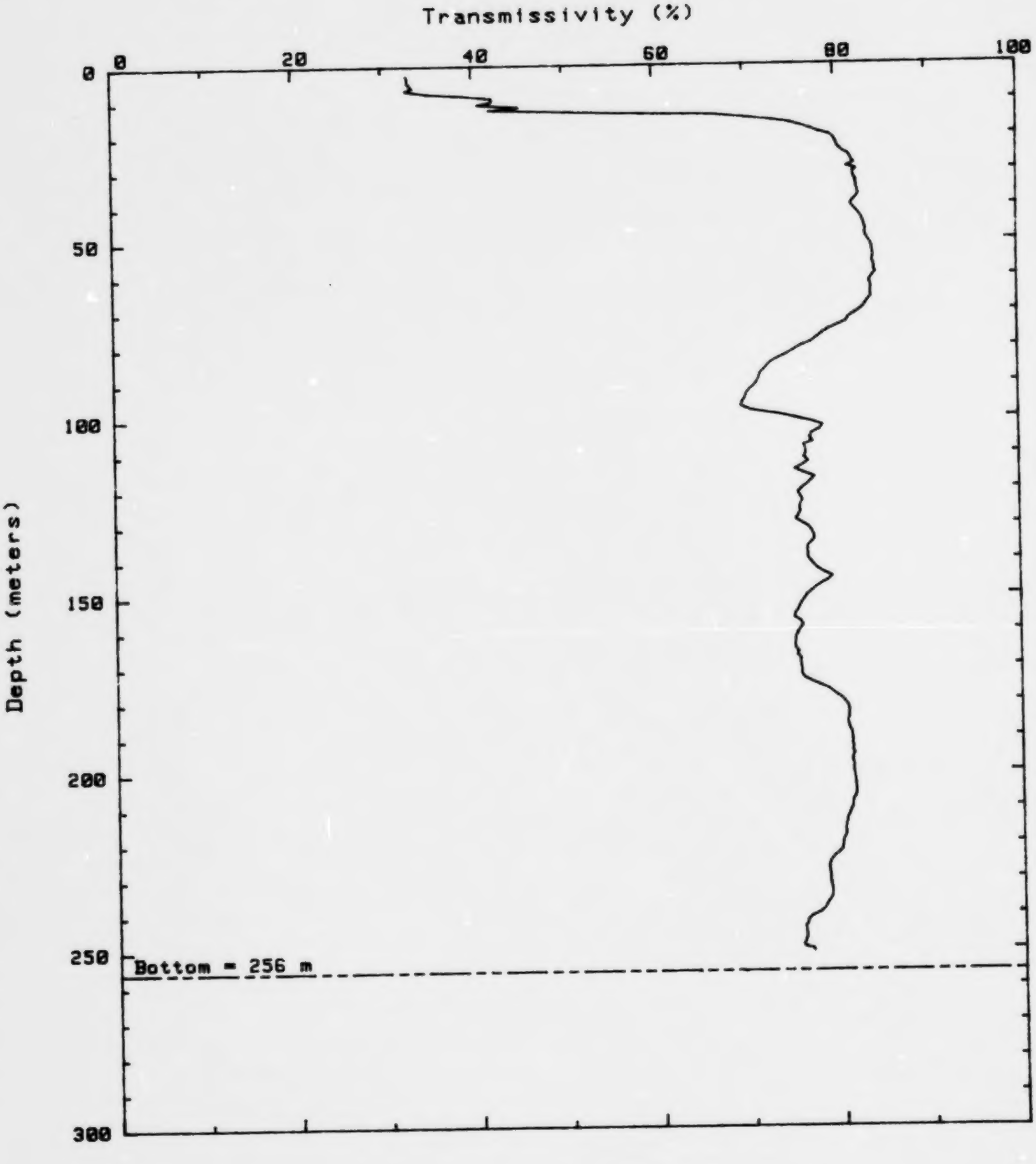
Survey Area : ALICE ARM
Station : Q-20

Date : 82/07/12
Time : 2151 PDT



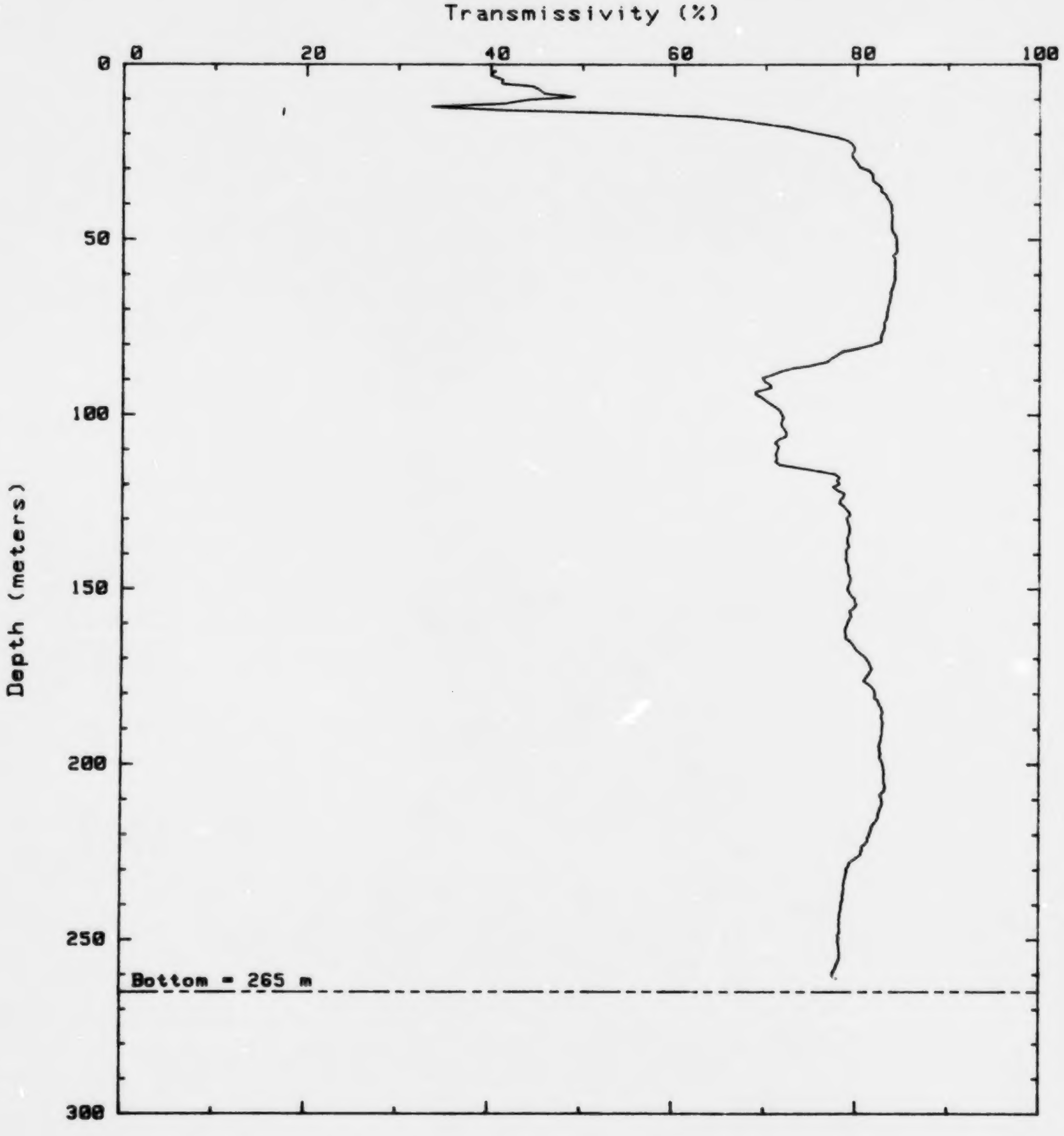
Survey Area : ALICE ARM
Station : S-20

Date : 82/07/10
Time : 2246 PDT



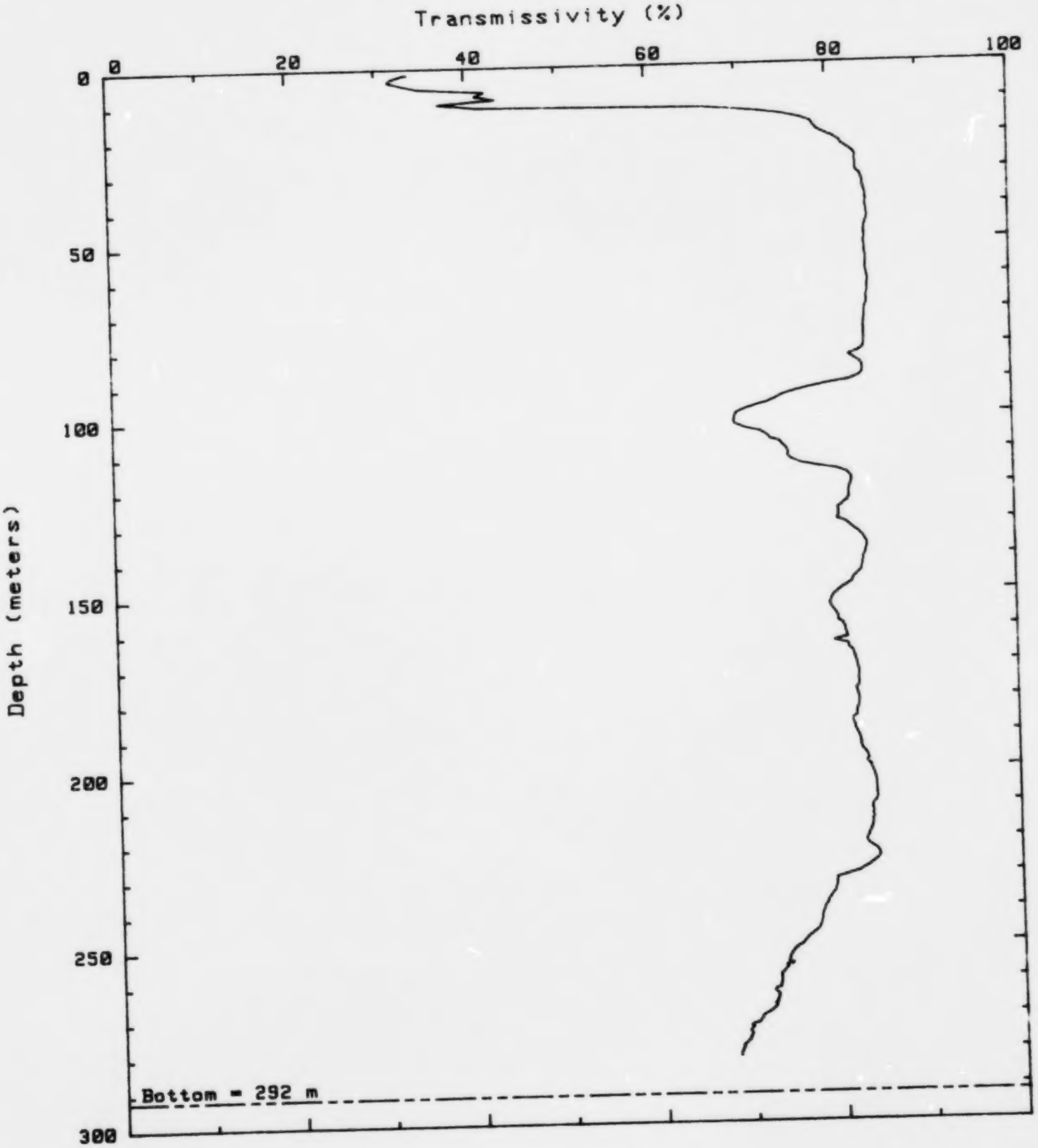
Survey Area : ALICE ARM
Station : S-20

Date : 82/07/12
Time : 2206 PDT



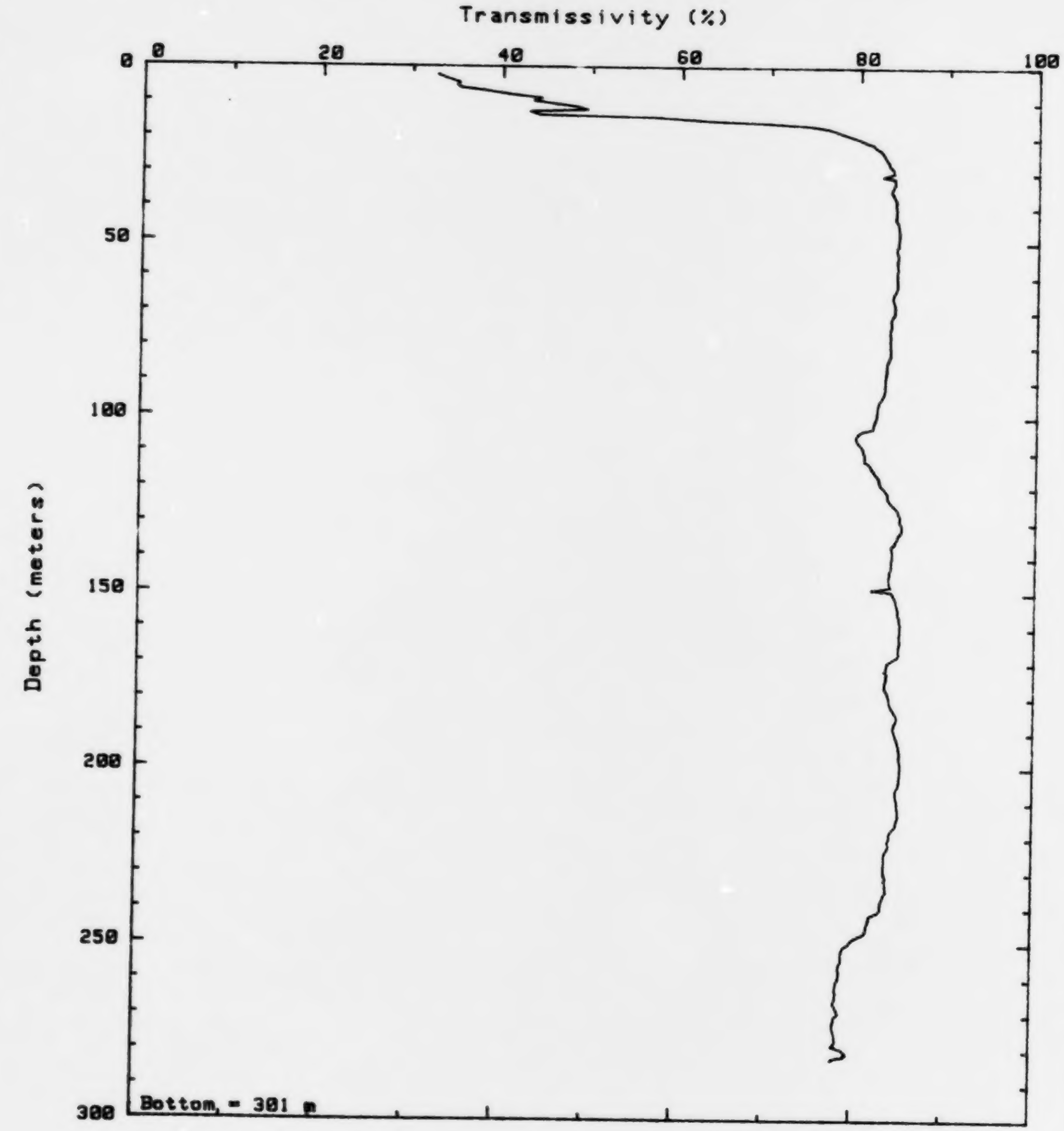
Survey Area : ALICE ARM
Station : Q-26

Date : 82/07/10
Time : 1245 PDT



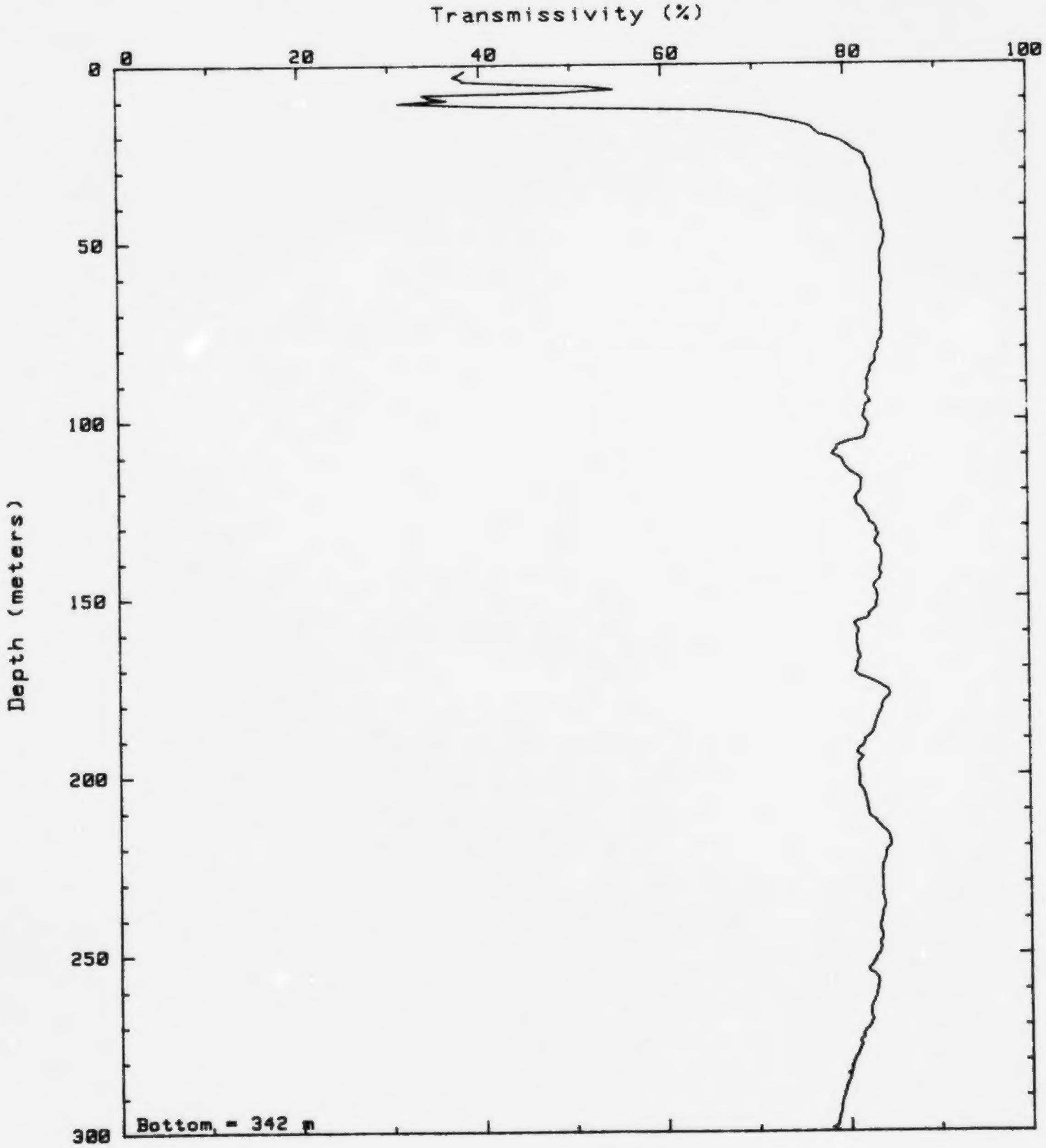
Survey Area : ALICE ARM
Station : R-32

Date : 82/07/10
Time : 2223 PDT



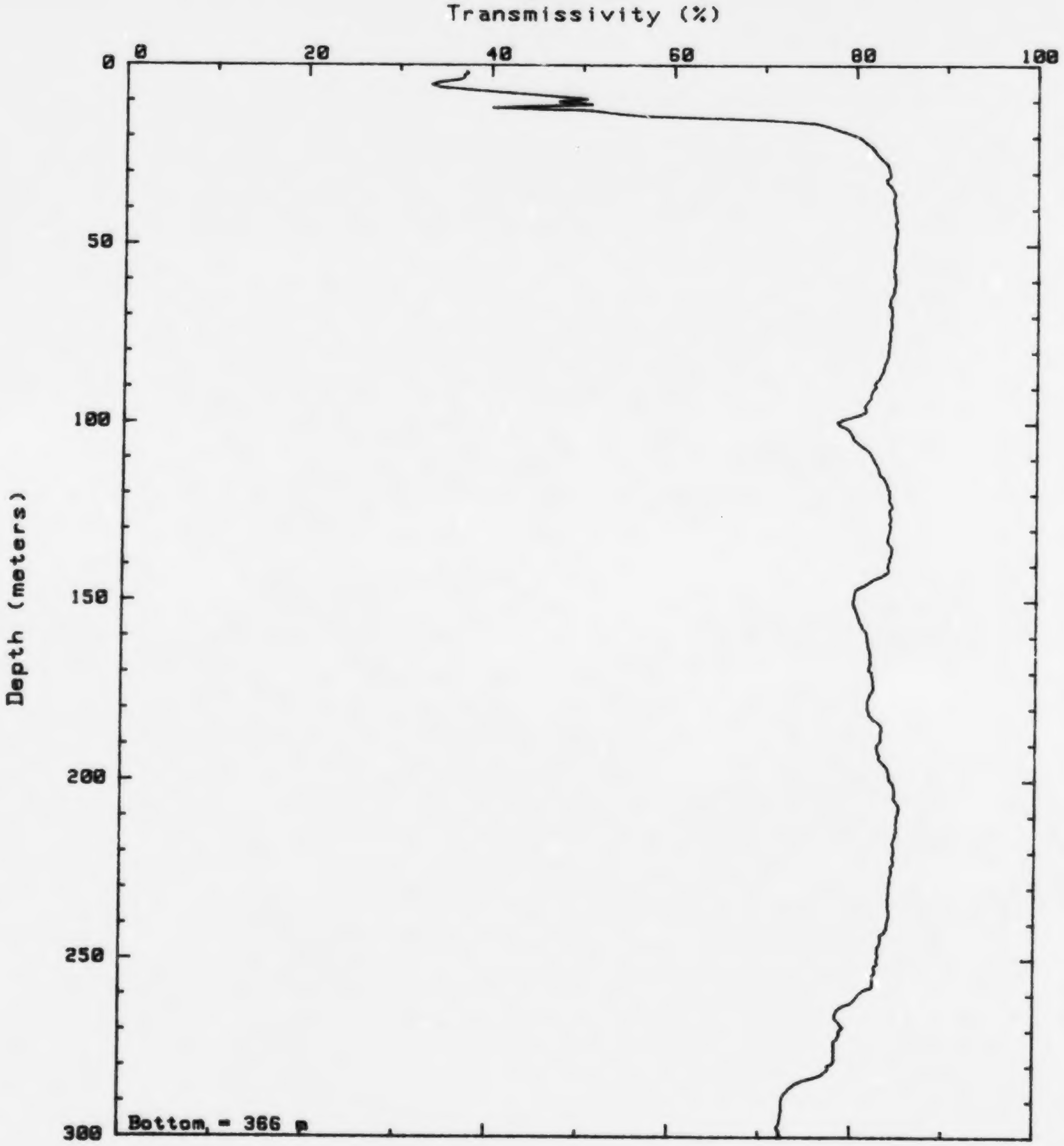
Survey Area : ALICE ARM
Station : R-32

Date : 82/07/12
Time : 1545 PDT



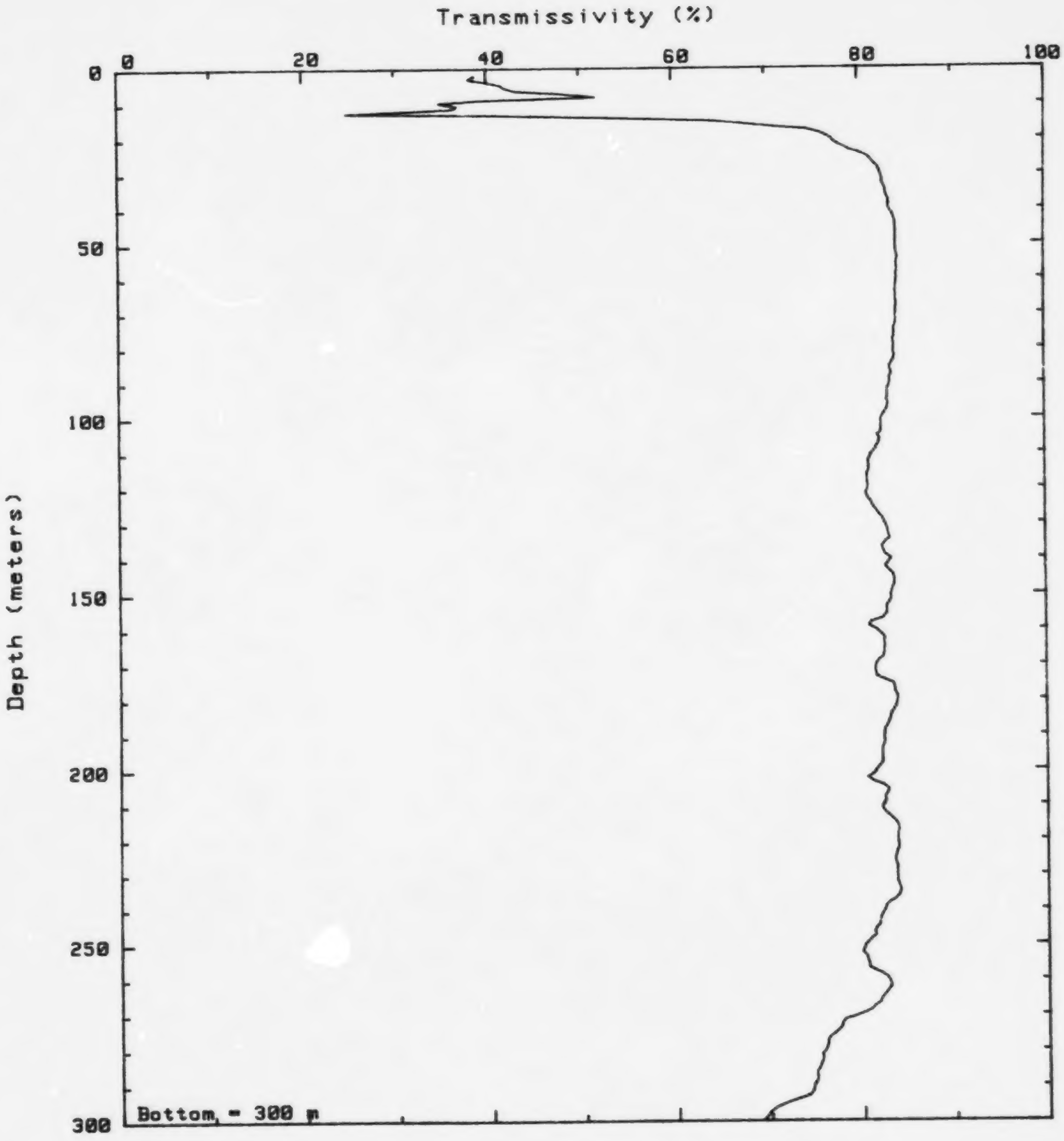
Survey Area : ALICE ARM
Station : O-32

Date : 82/07/10
Time : 2201 PDT



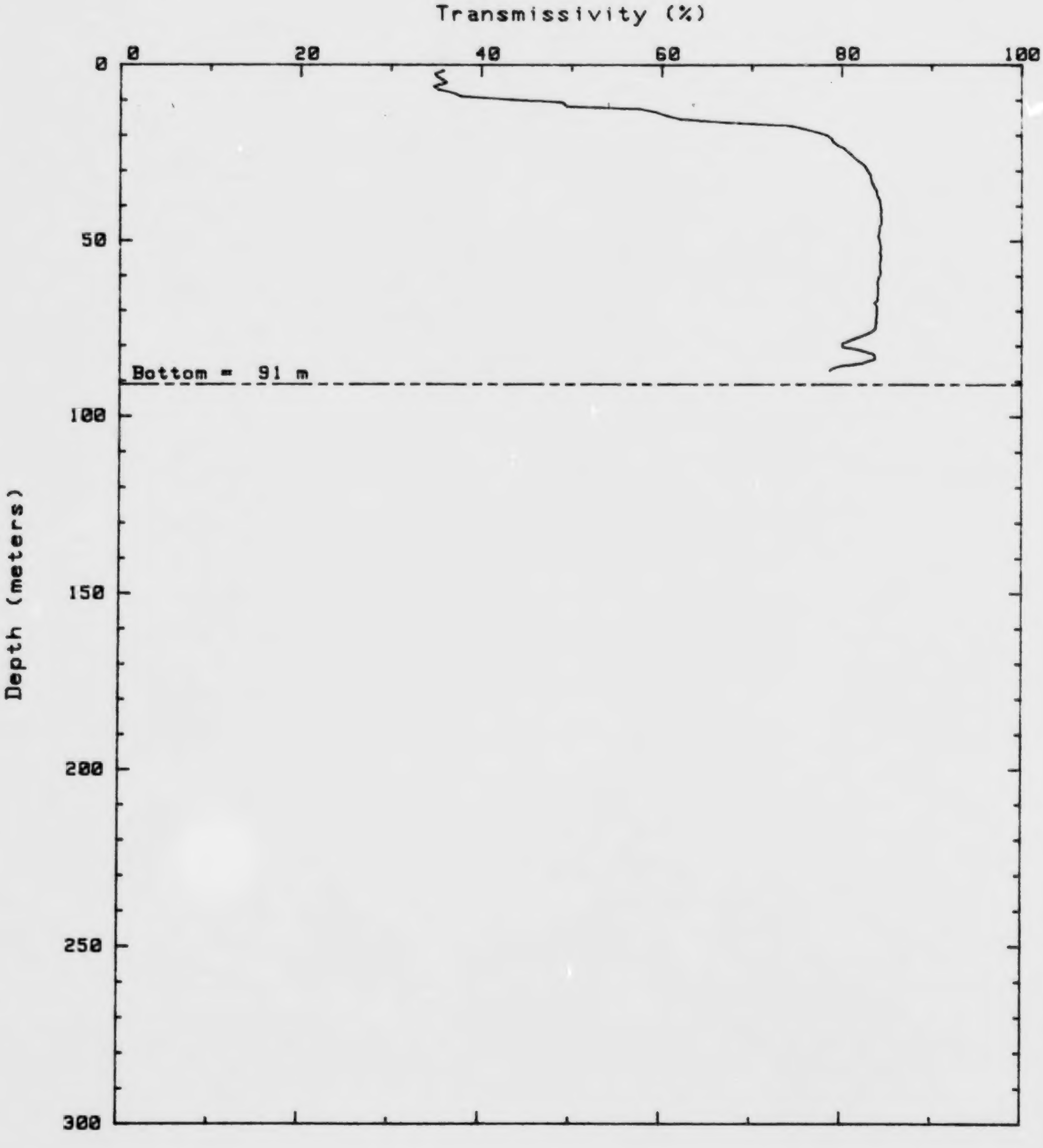
Survey Area : ALICE ARM
Station : O-32

Date : 82/07/12
Time : 1613 PDT



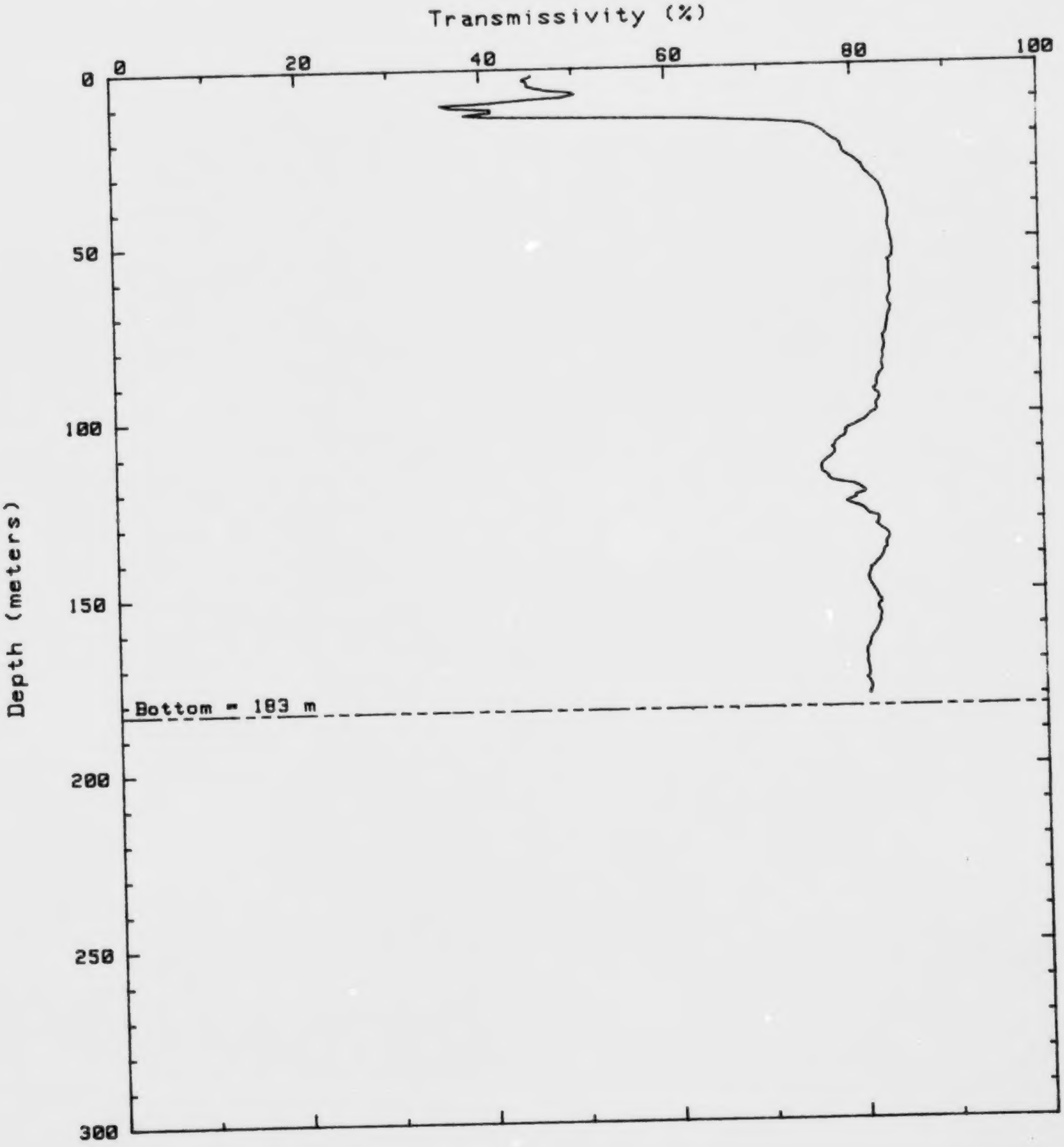
Survey Area : ALICE ARM
Station : L-32

Date : 82/07/10
Time : 2149 PDT



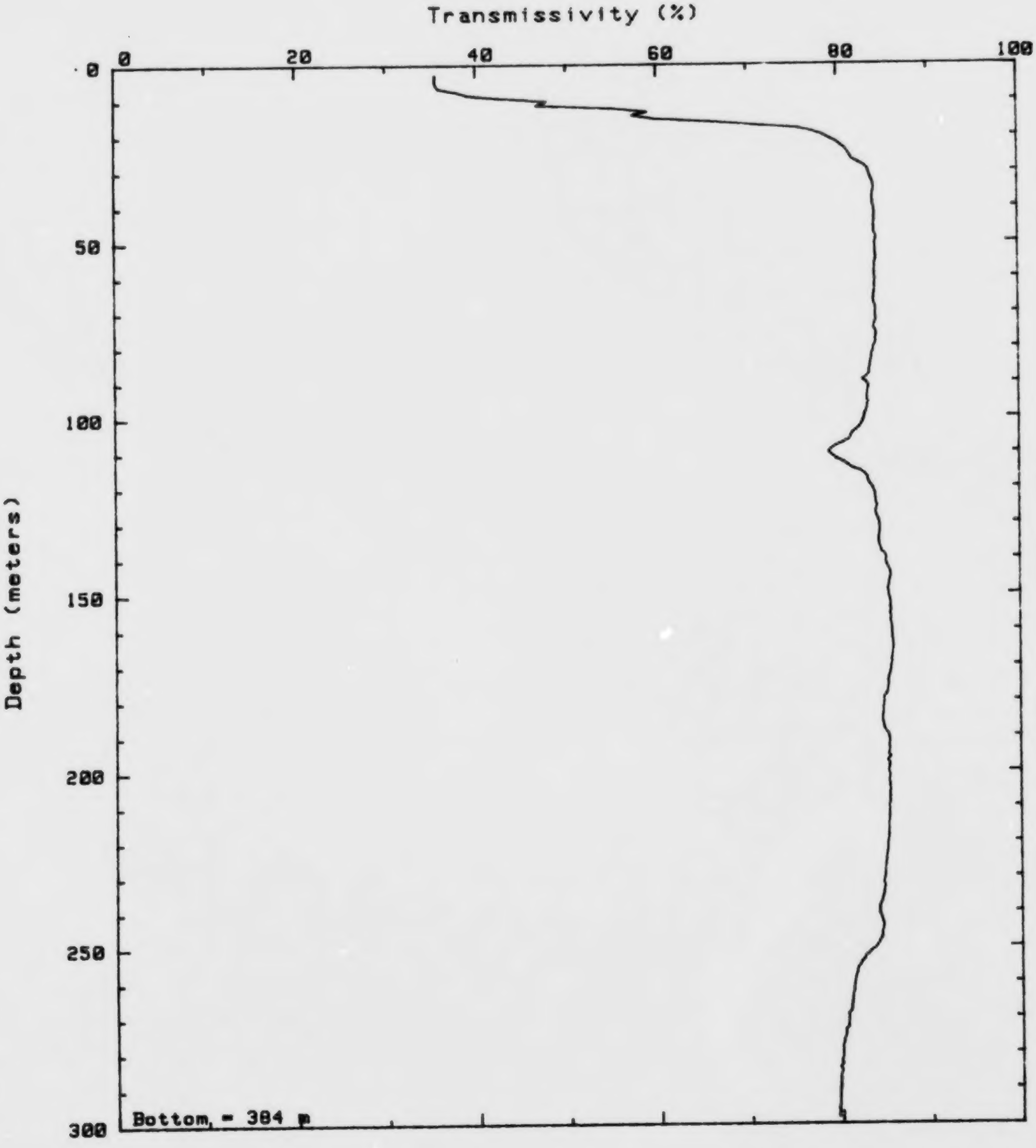
Survey Area : ALICE ARM
Station : L-32

Date : 82/07/12
Time : 1630 PDT



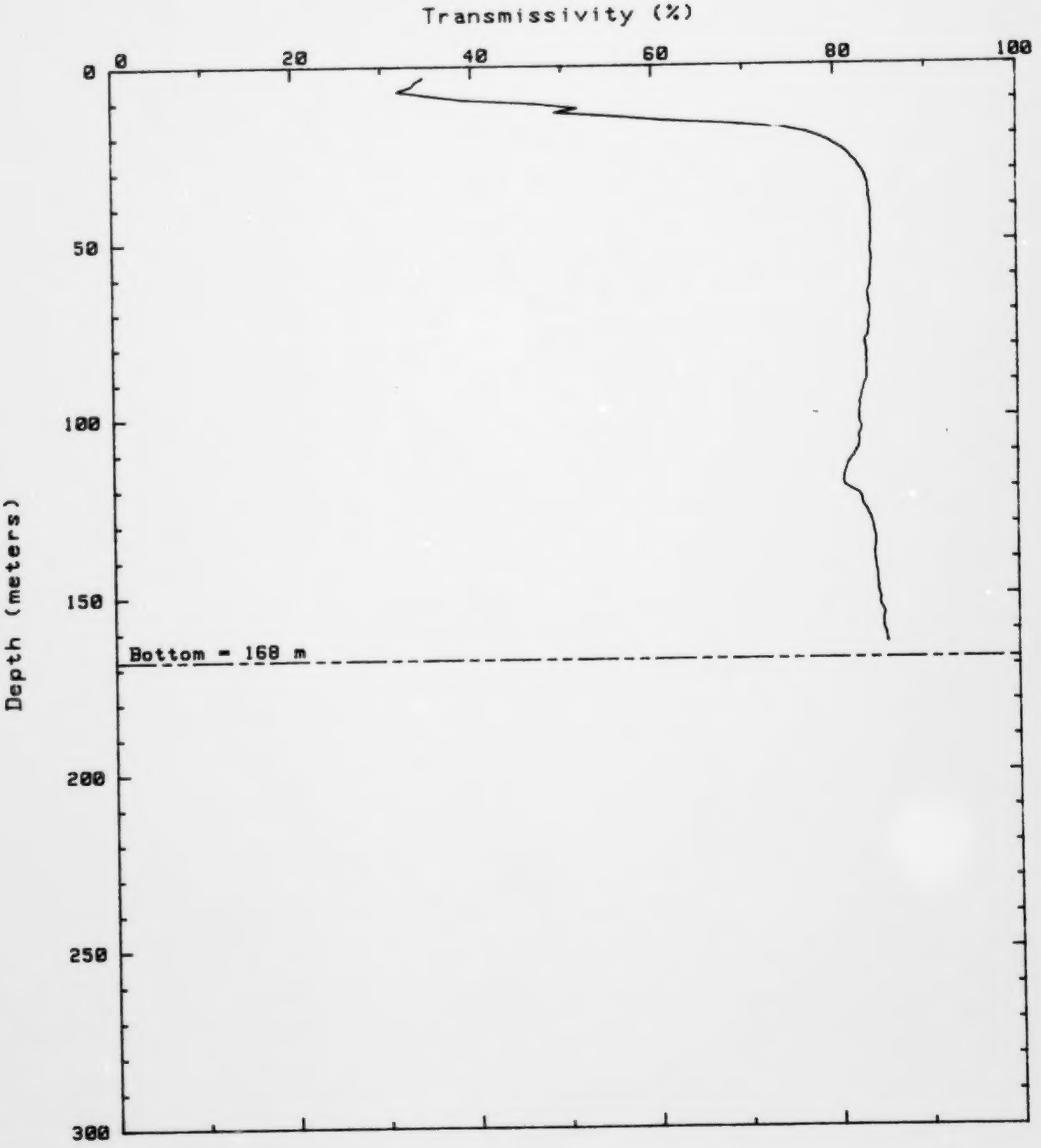
Survey Area : ALICE ARM
Station : M-40

Date : 82/07/10
Time : 2129 PDT



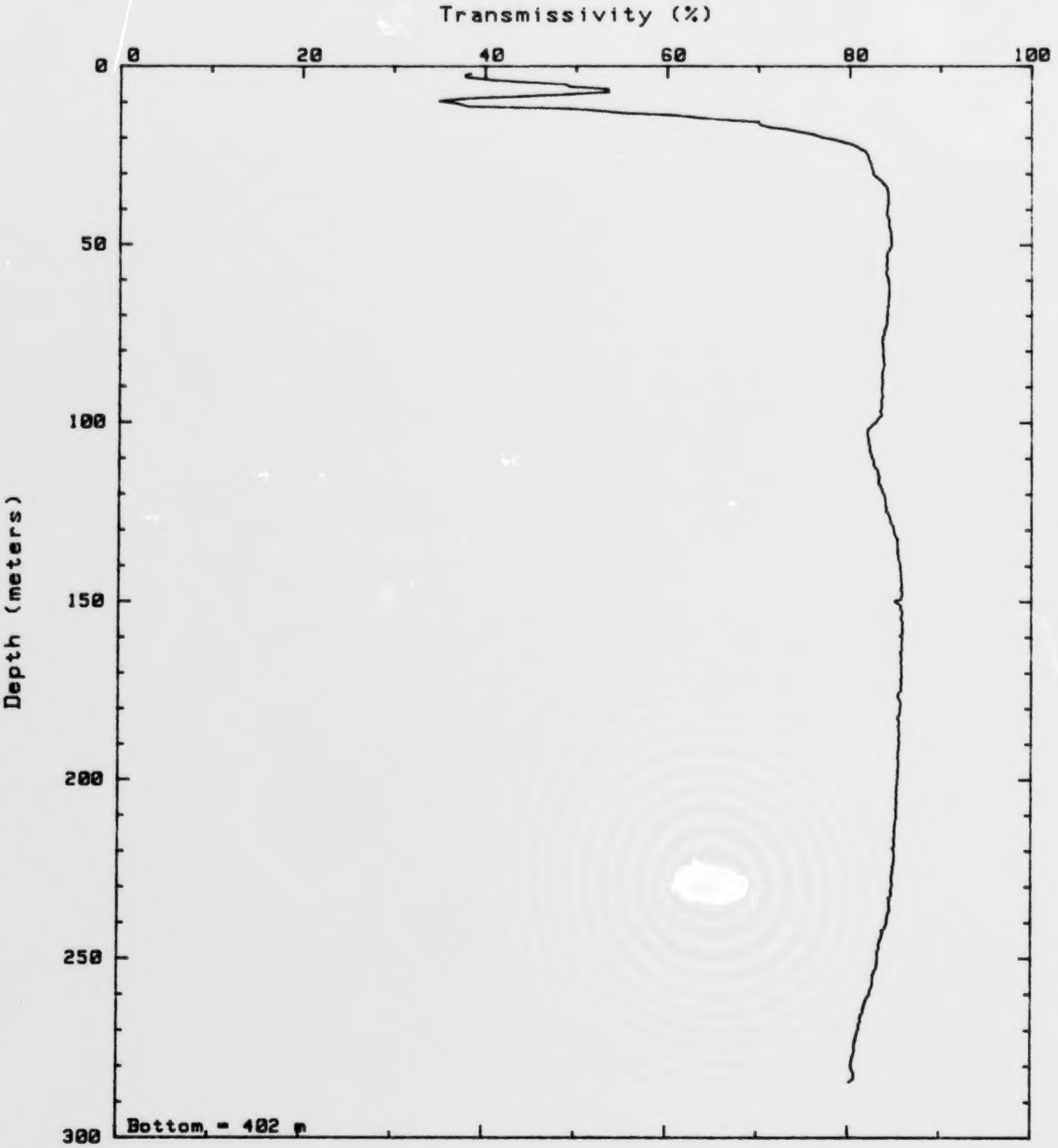
Survey Area : ALICE ARM
Station : K-49

Date : 82/07/10
Time : 2104 PDT



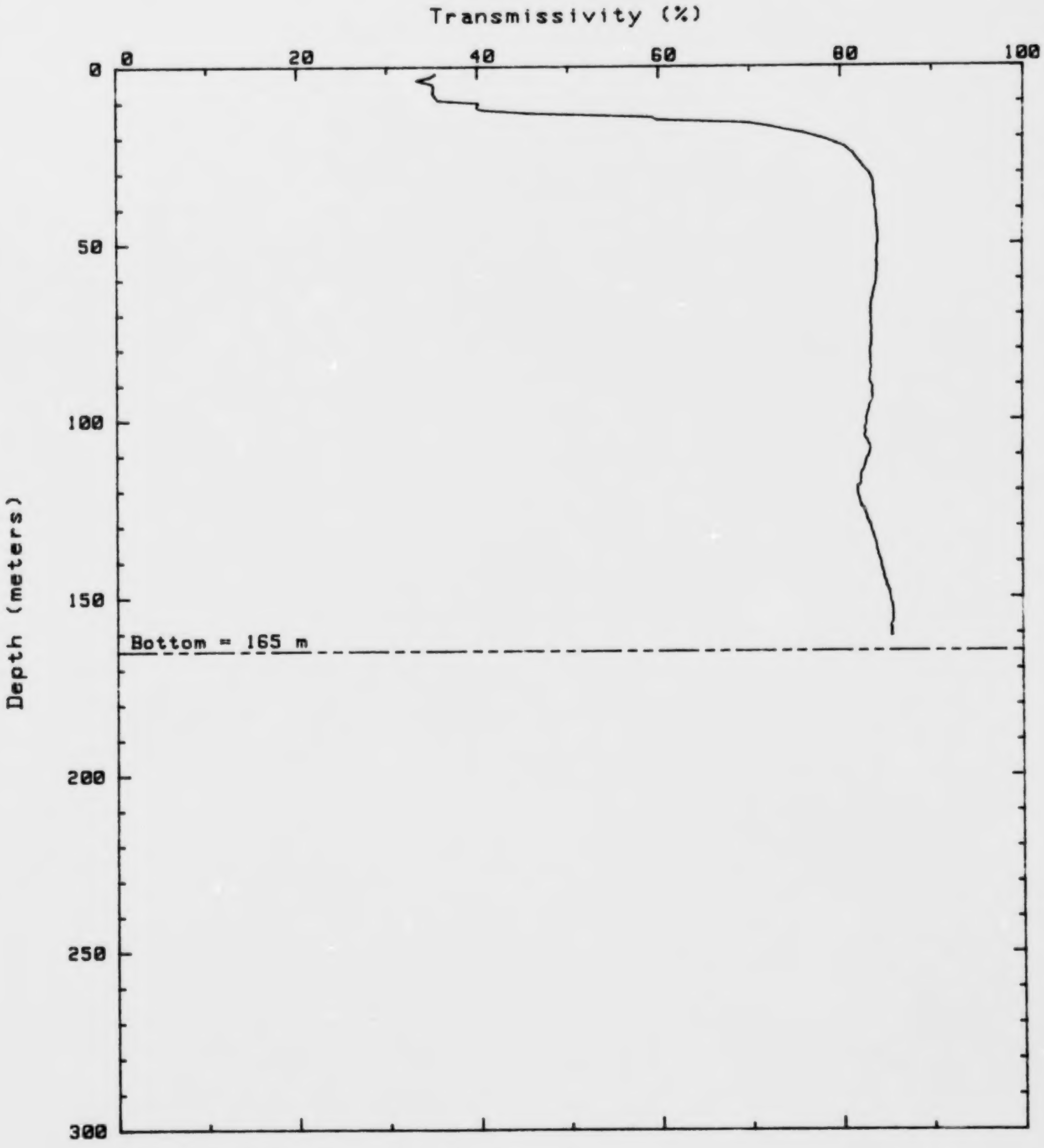
Survey Area : ALICE ARM
Station : K-49

Date : 82/07/12
Time : 1500 PDT



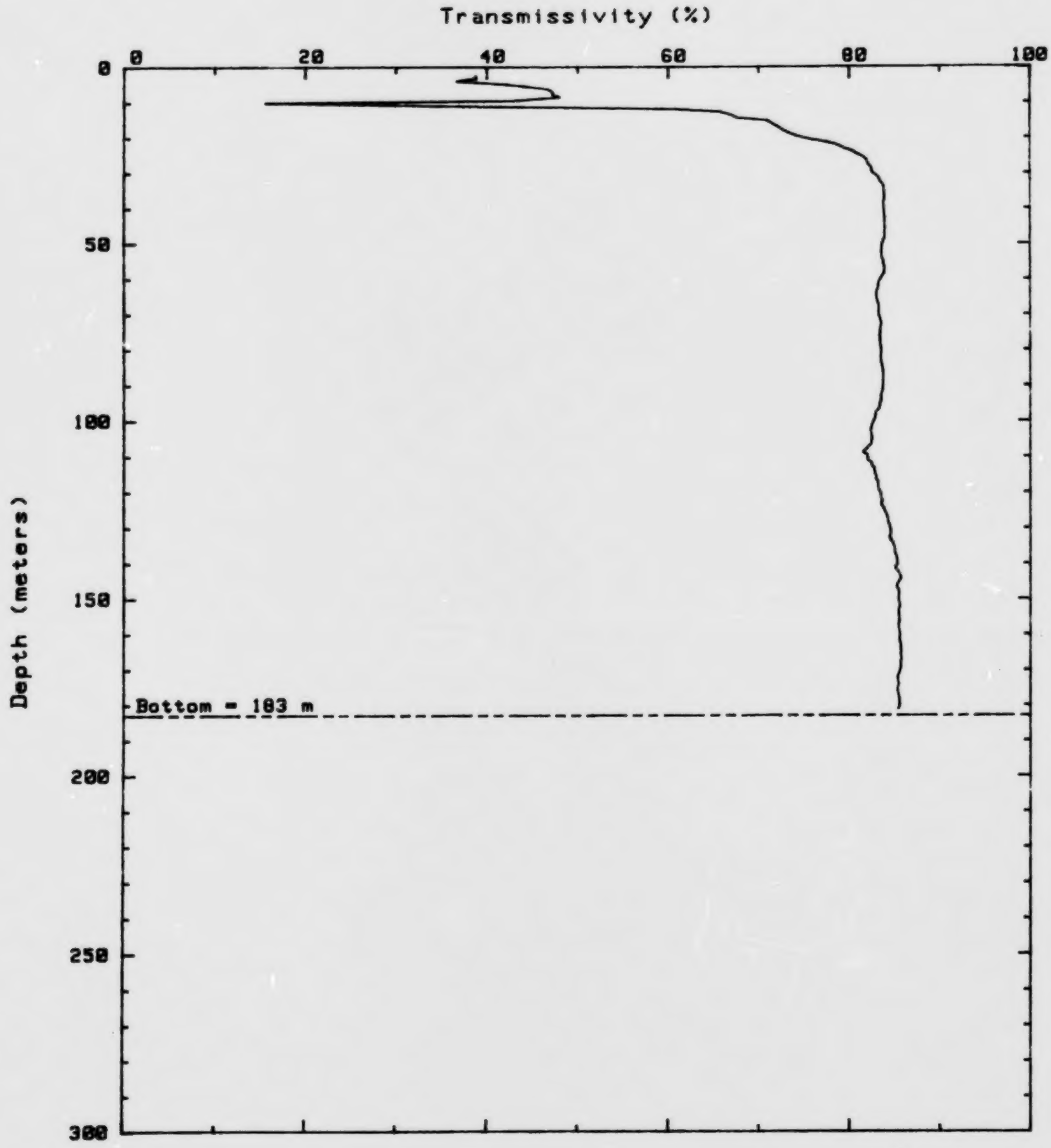
Survey Area : ALICE ARM
Station : O-49

Date : 82/07/10
Time : 2008 PDT



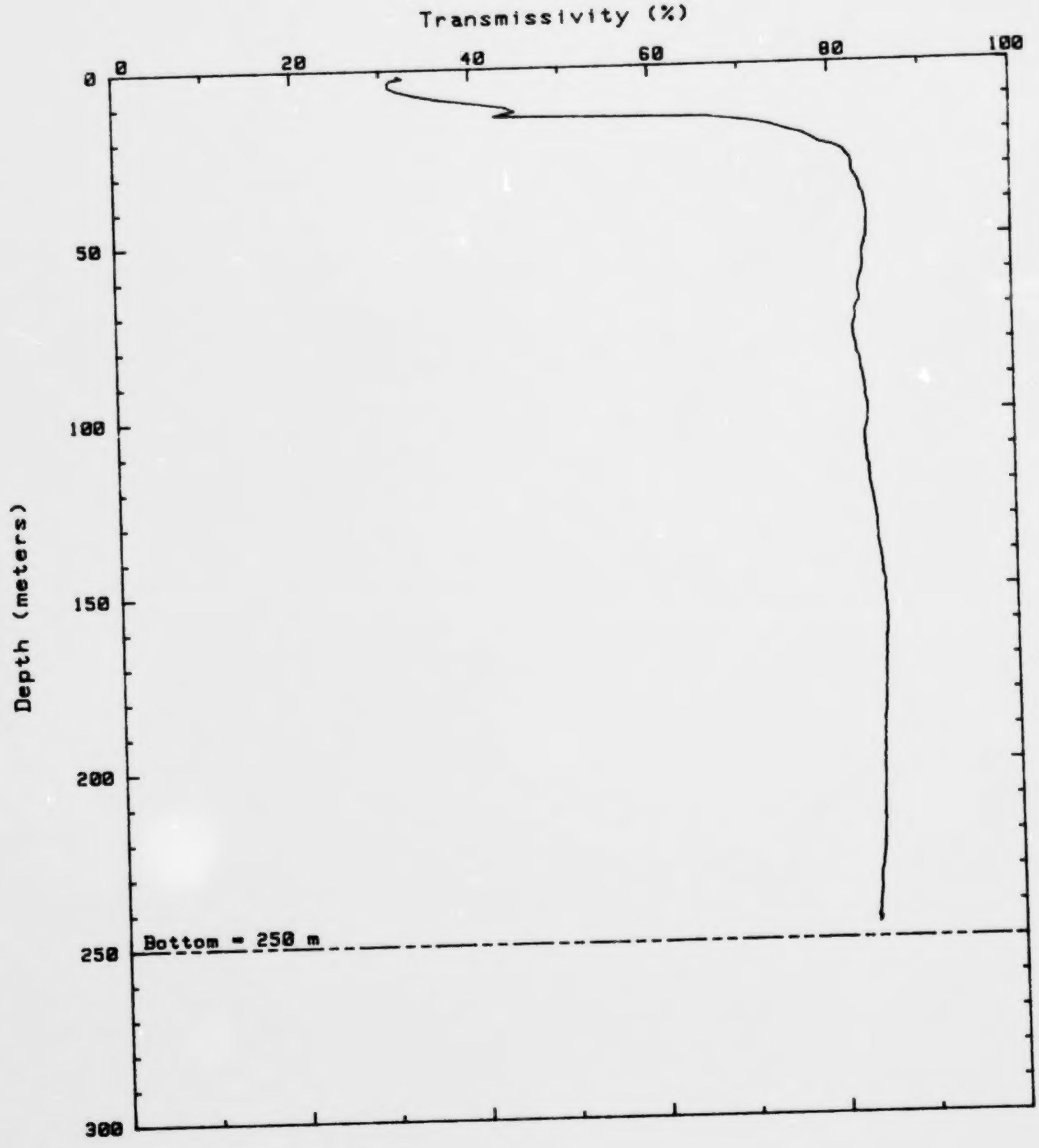
Survey Area : ALICE ARM
Station : O-49

Date : 82/07/12
Time : 1524 PDT



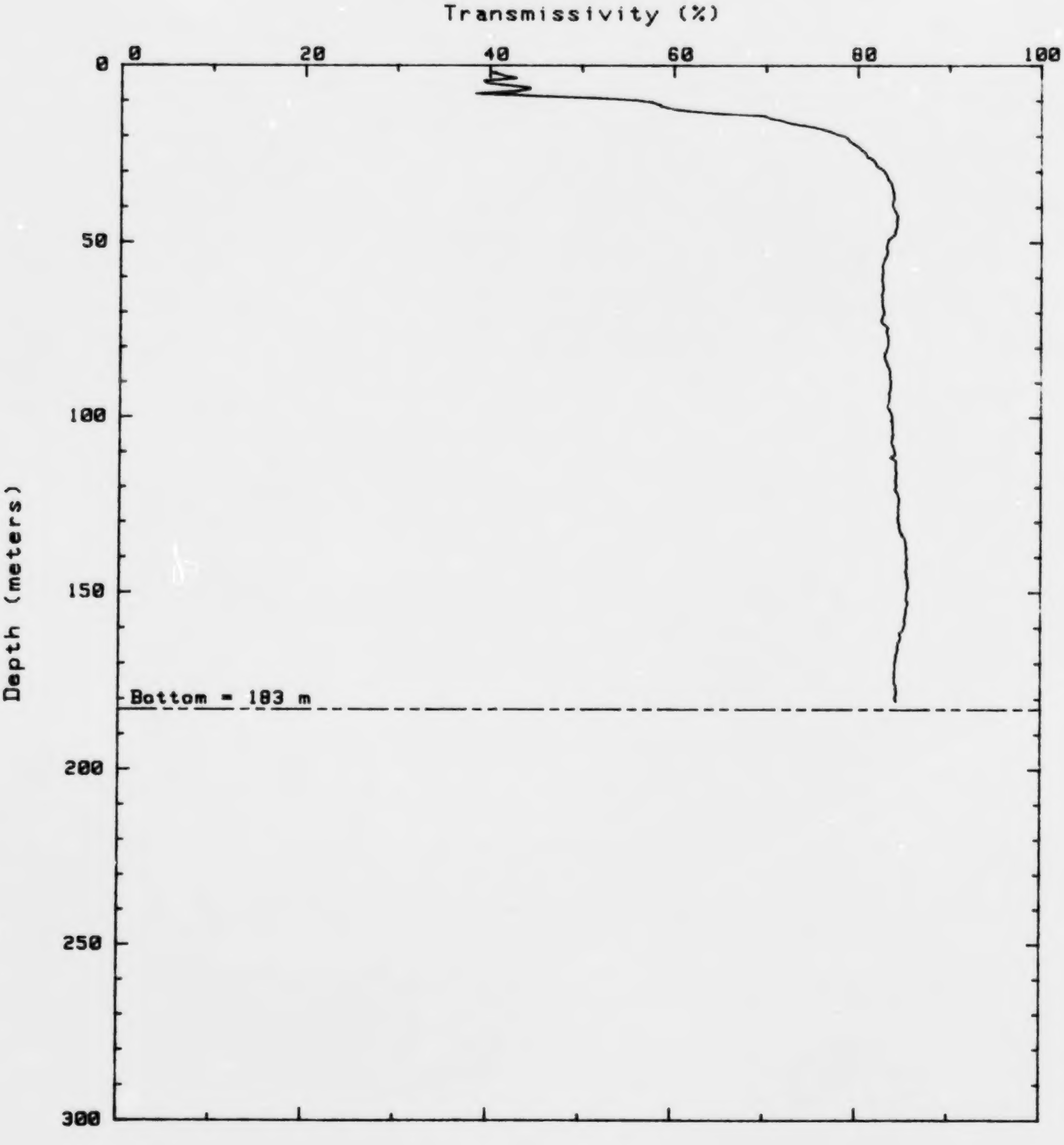
Survey Area : ALICE ARM
Station : T-64

Date : 82/07/10
Time : 1943 PDT



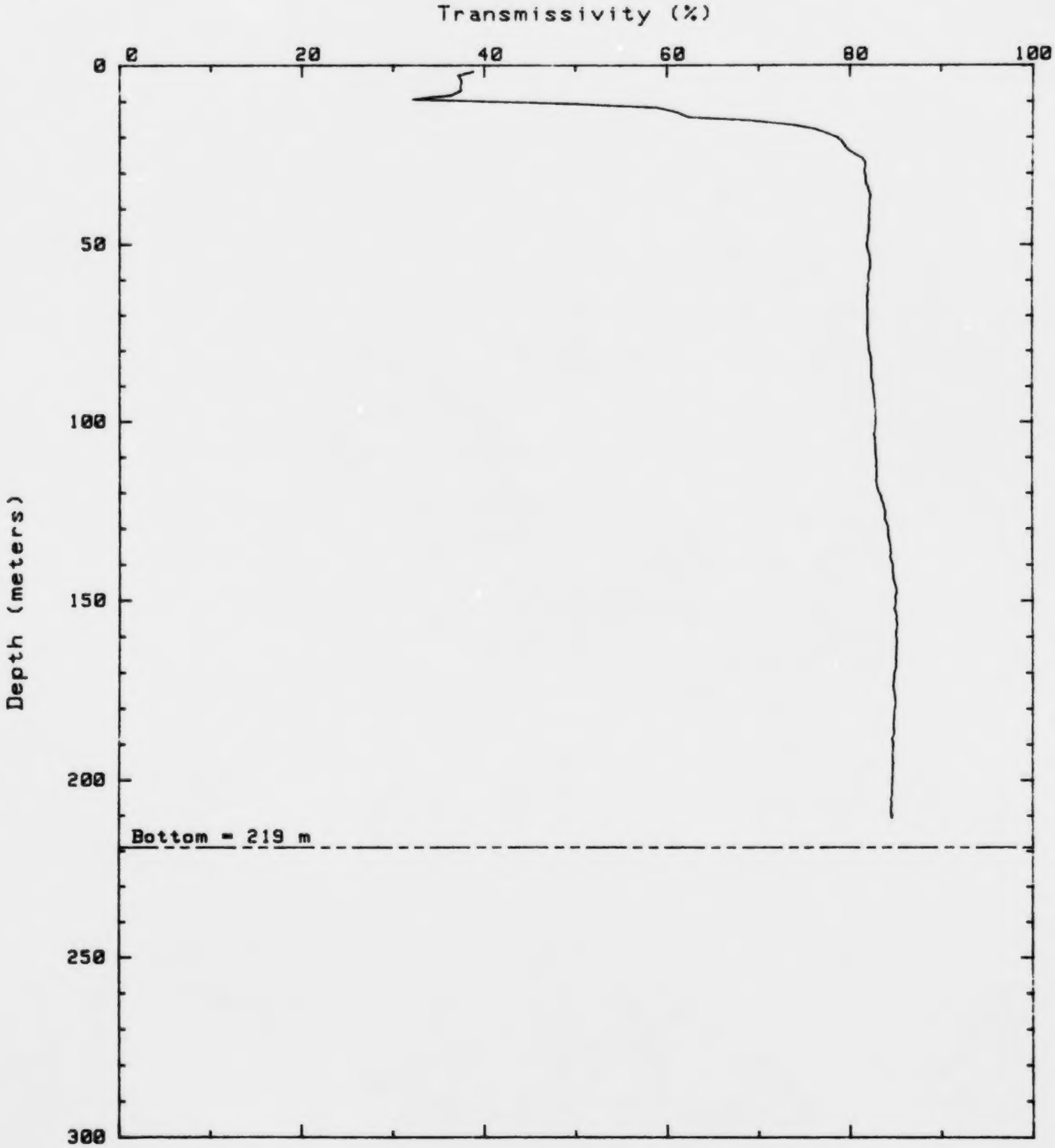
Survey Area : ALICE ARM
Station : T-64

Date : 82/07/12
Time : 1424 PDT



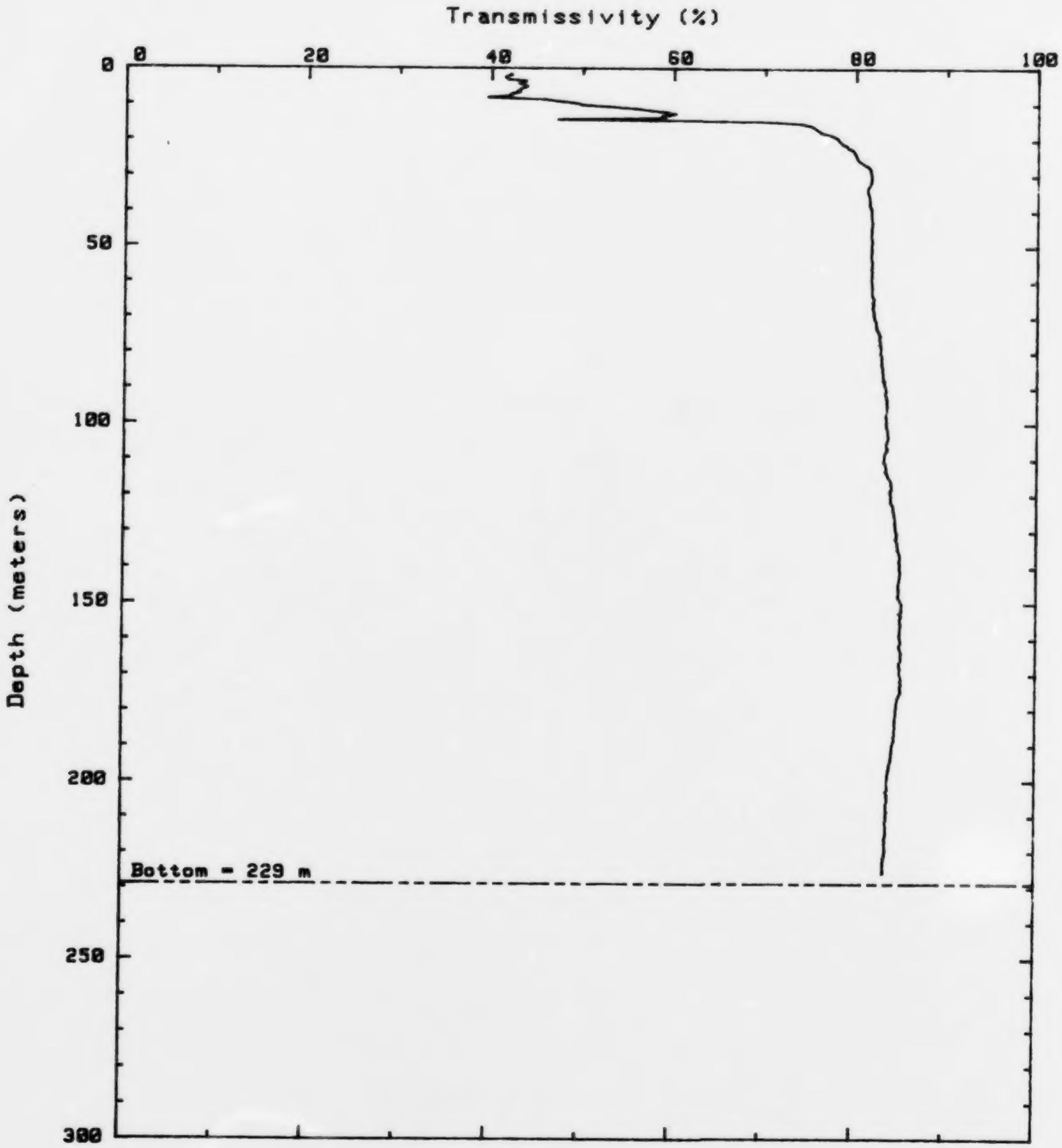
Survey Area : ALICE ARM
Station : B-1-68

Date : 82/07/10
Time : 1921 PDT



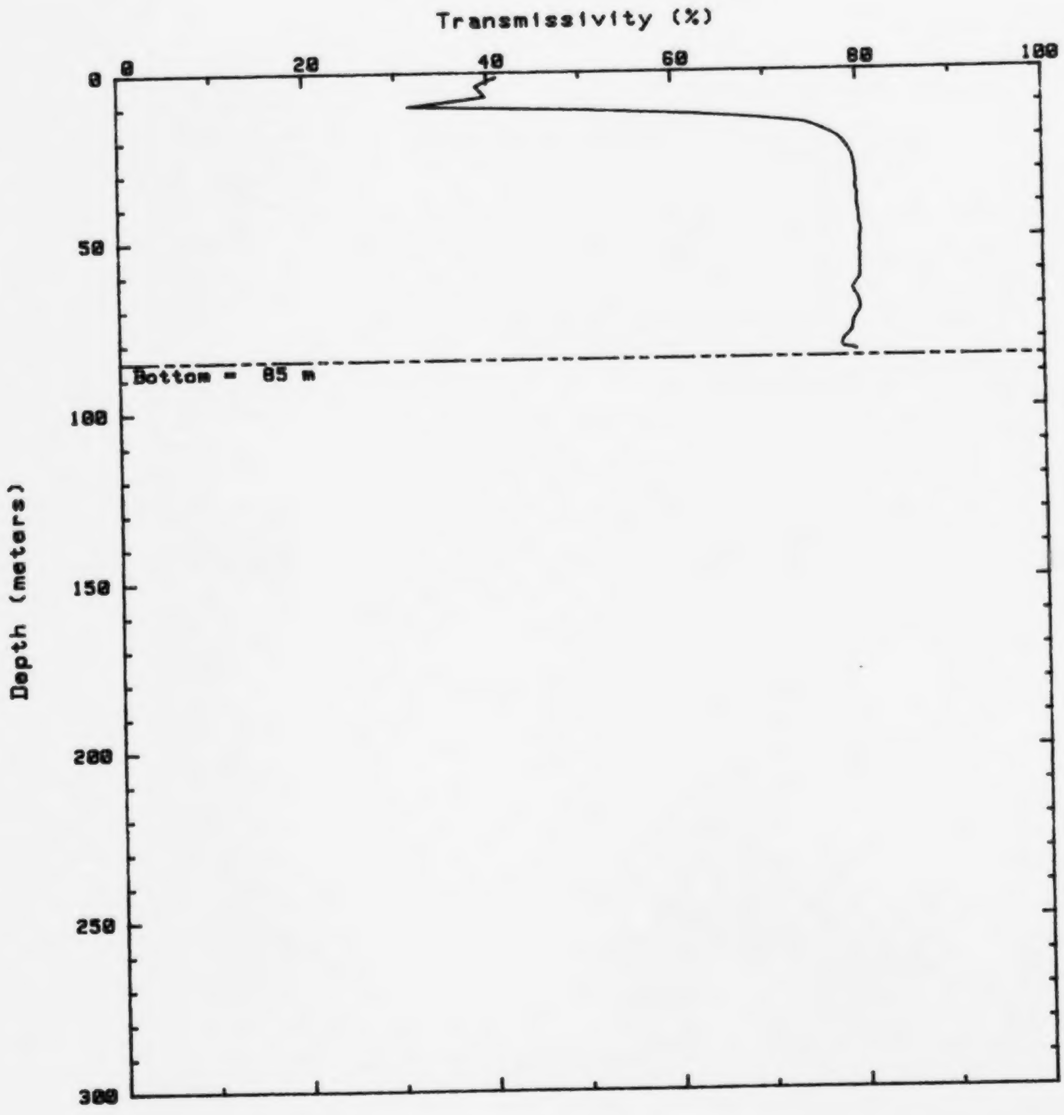
Survey Area : ALICE ARM
Station : B-1-68

Date : 82/07/12
Time : 1405 PDT



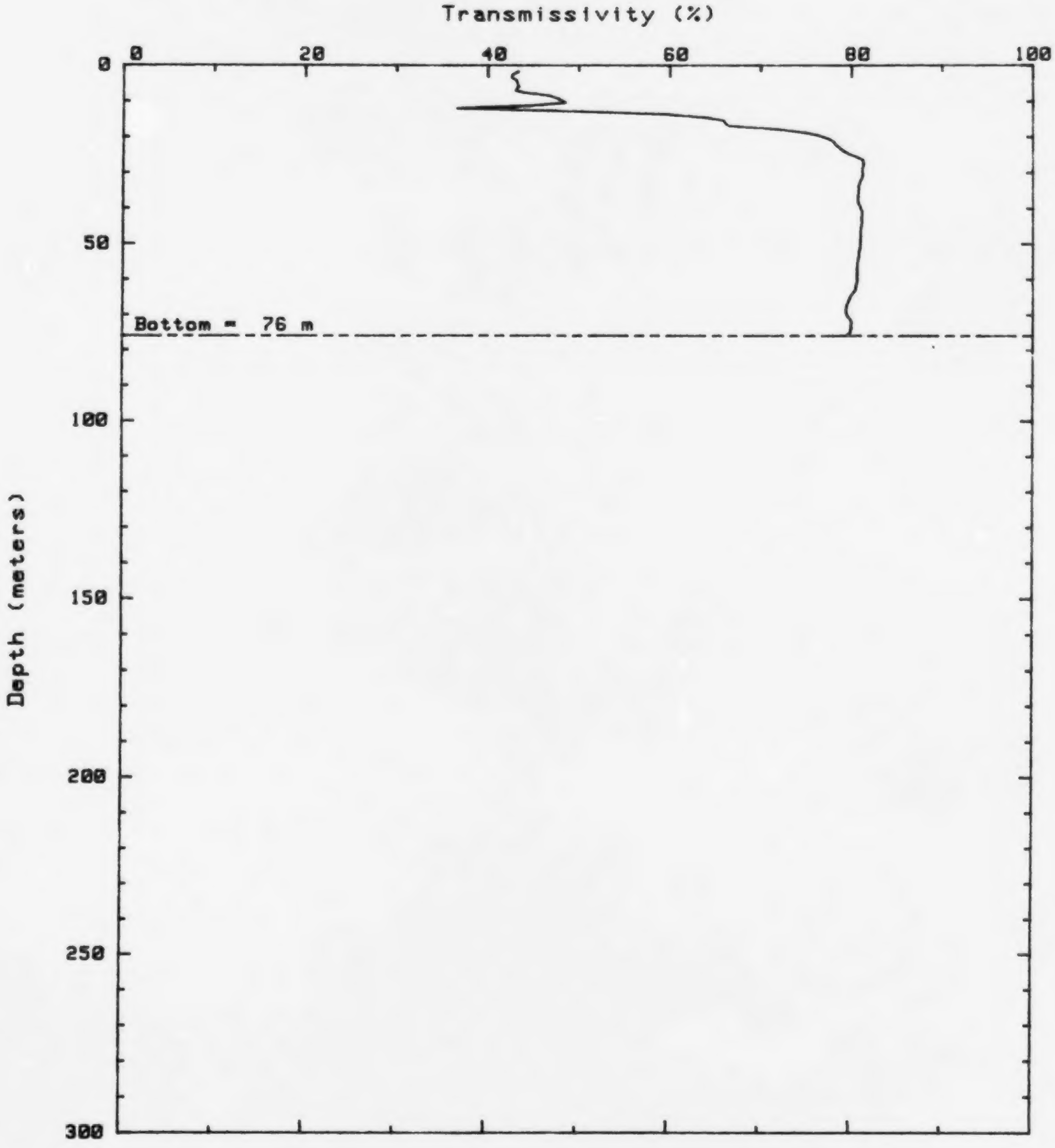
Survey Area : ALICE ARM
Station : K-1-70

Date : 82/07/10
Time : 1836 PDT



Survey Area : ALICE ARM
Station : K-1-70

Date : 82/07/12
Time : 1351 PDT

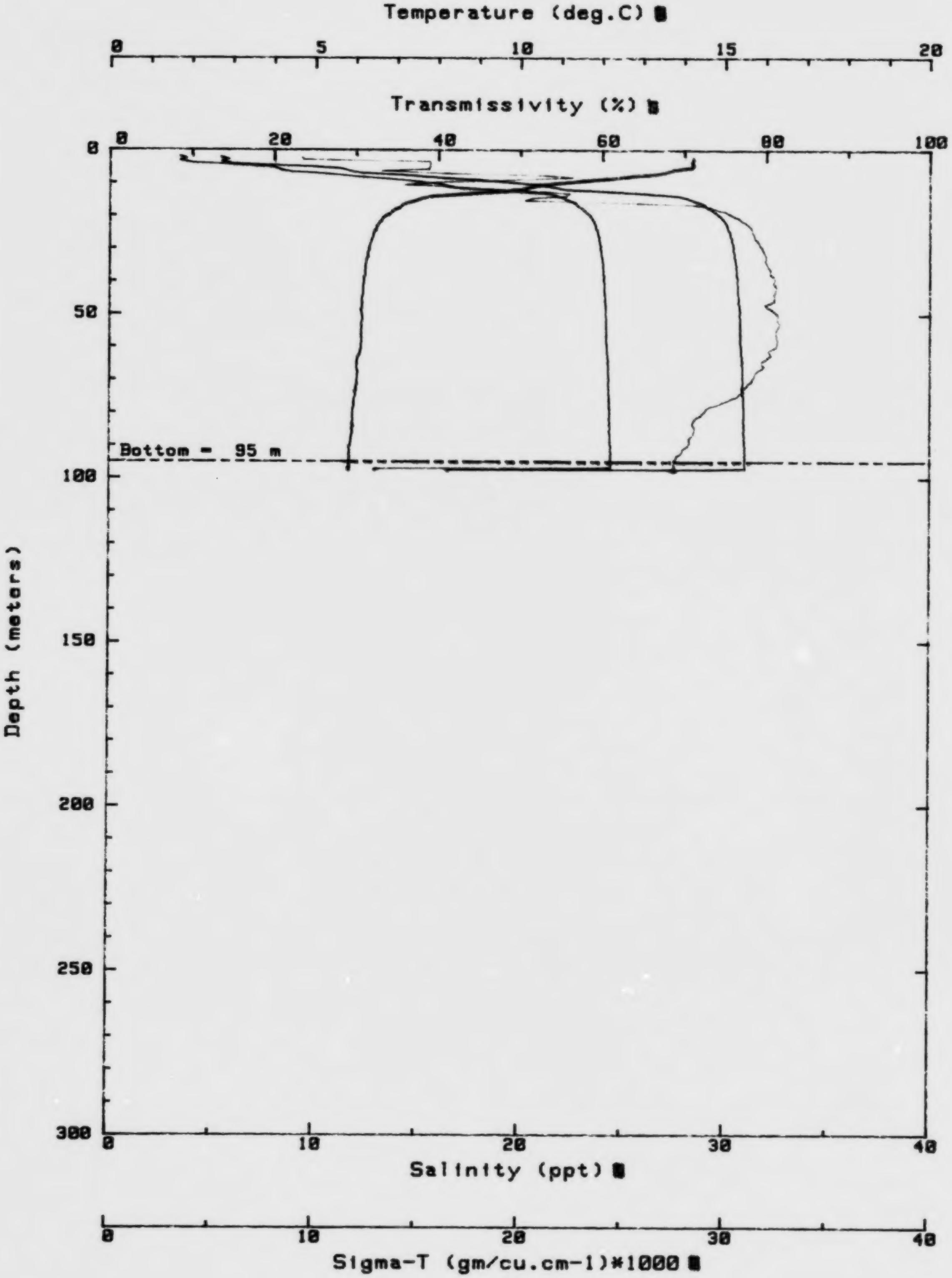


APPENDIX IB

CTD-TRANSMITTANCE PROFILES - JULY 1982

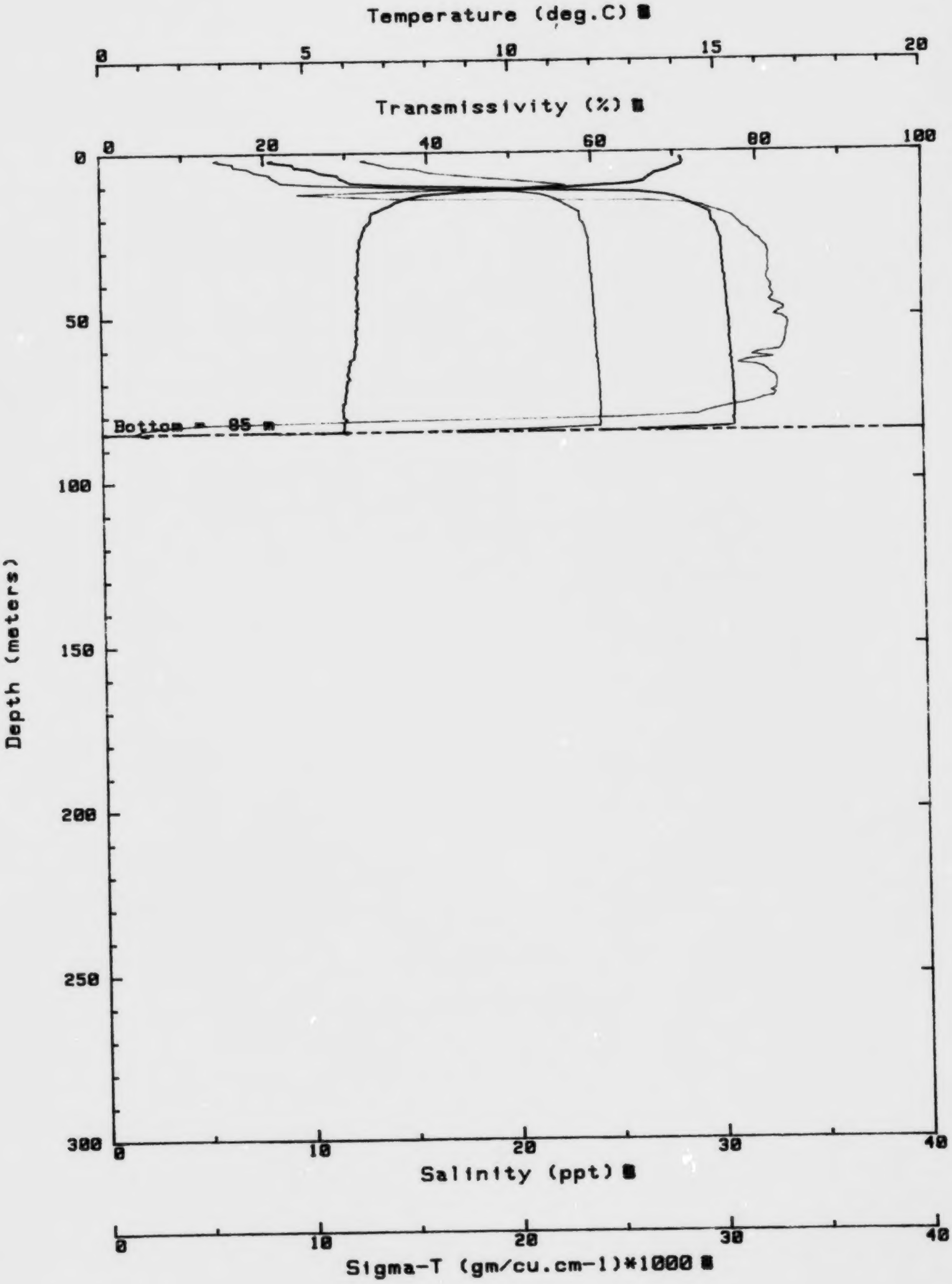
Survey Area : ALICE ARM
Station : G-5

Date : 82/07/13
Time : 0013 PDT



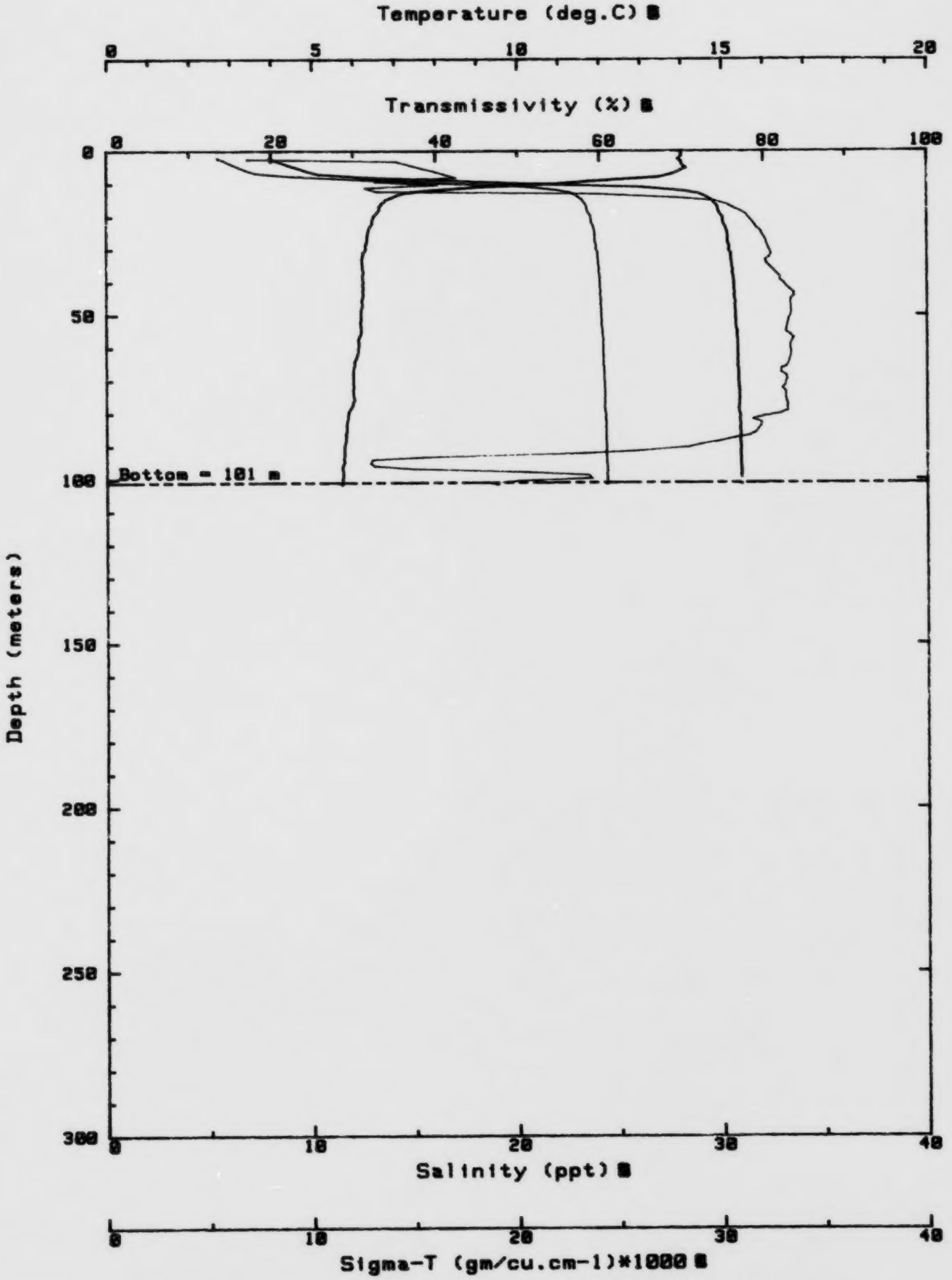
Survey Area : ALICE ARM
Station : N-8

Date : 82/07/08
Time : 2008 PDT



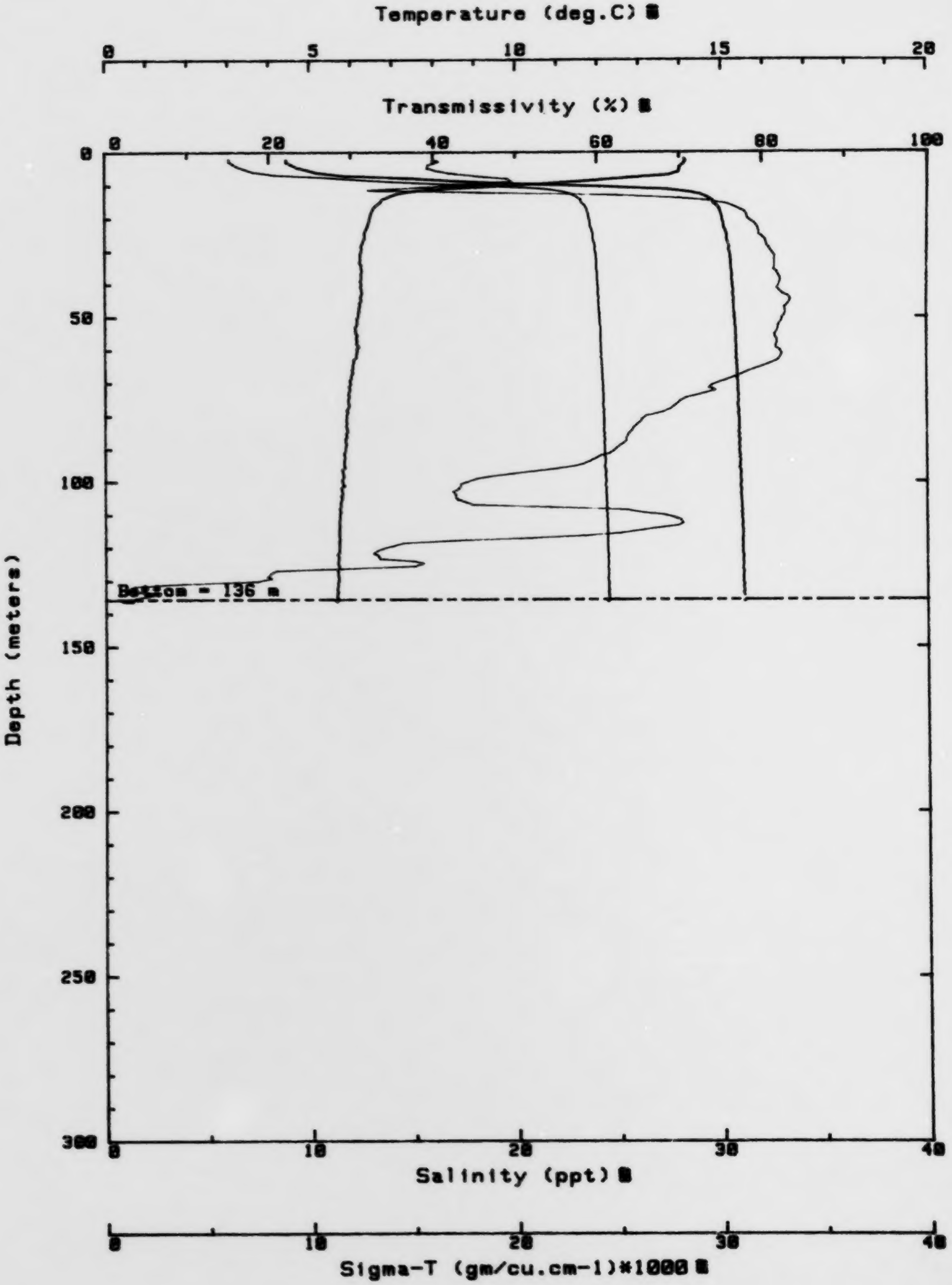
Survey Area : ALICE ARM
Station : N-8

Date : 82/07/08
Time : 2354 PDT



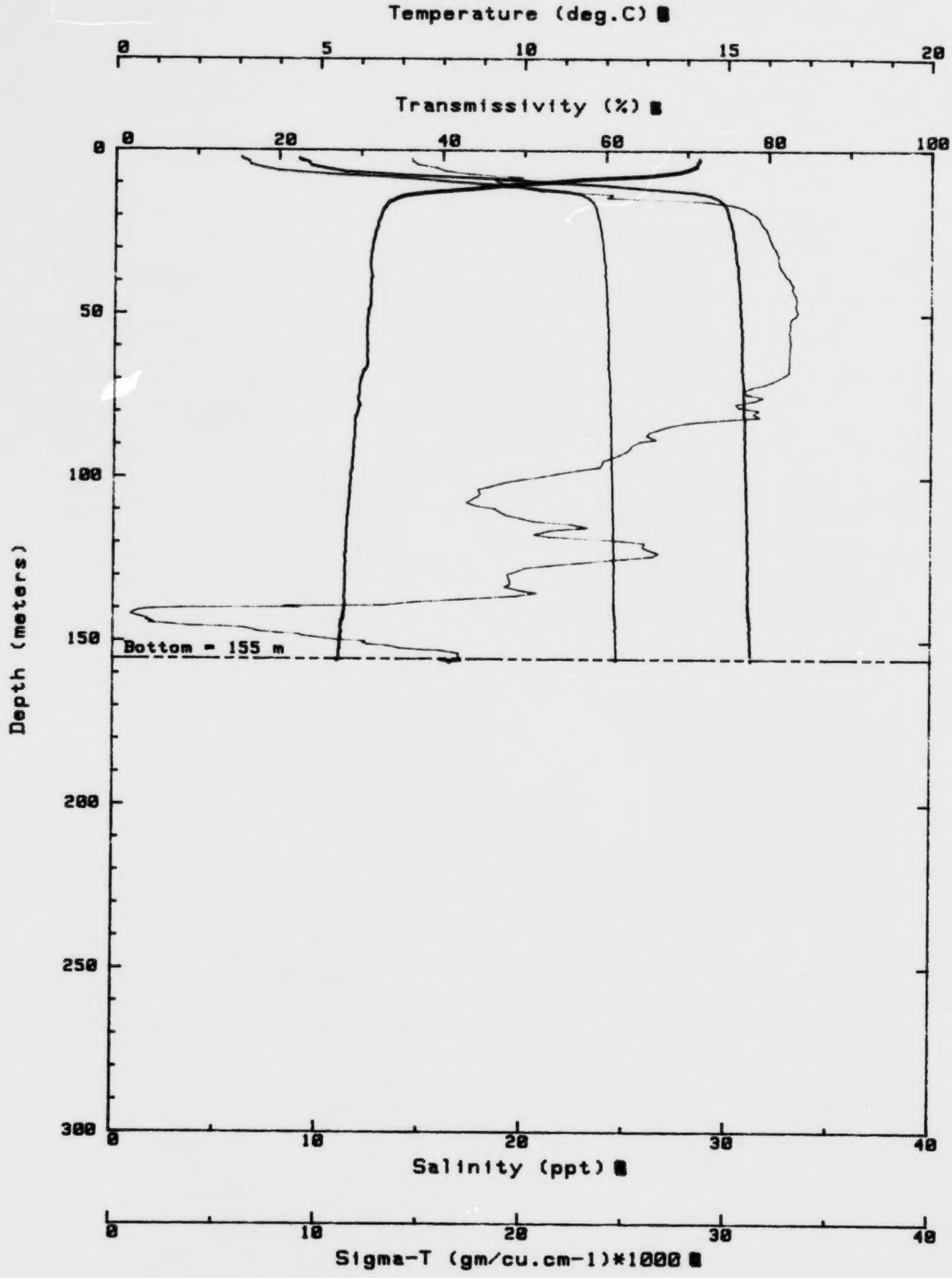
Survey Area : ALICE ARM
Station : N-8

Date : 82/07/09
Time : 0016 PDT



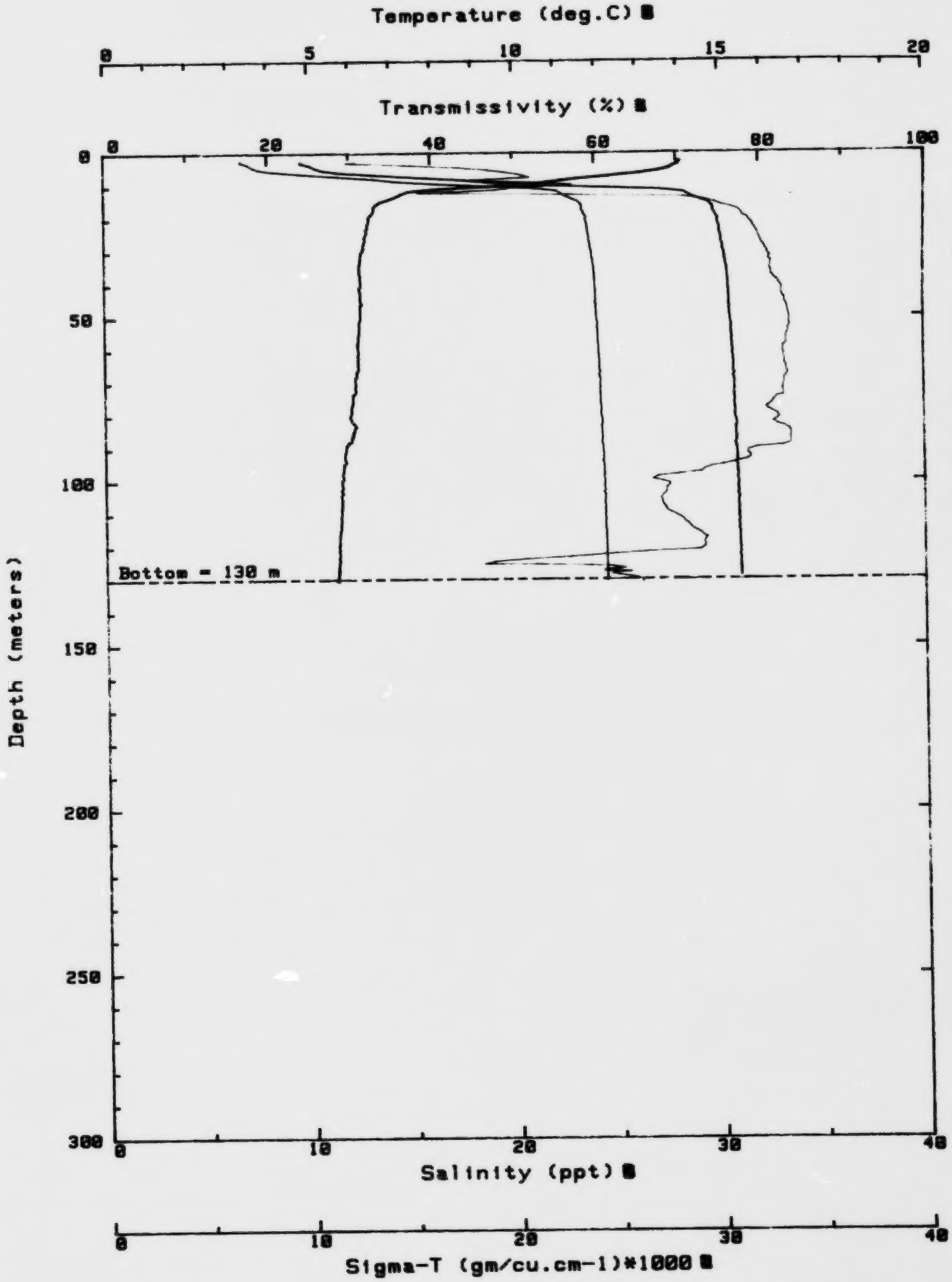
Survey Area : ALICE ARM
Station : N-8

Date : 82/07/09
Time : 0048 PDT



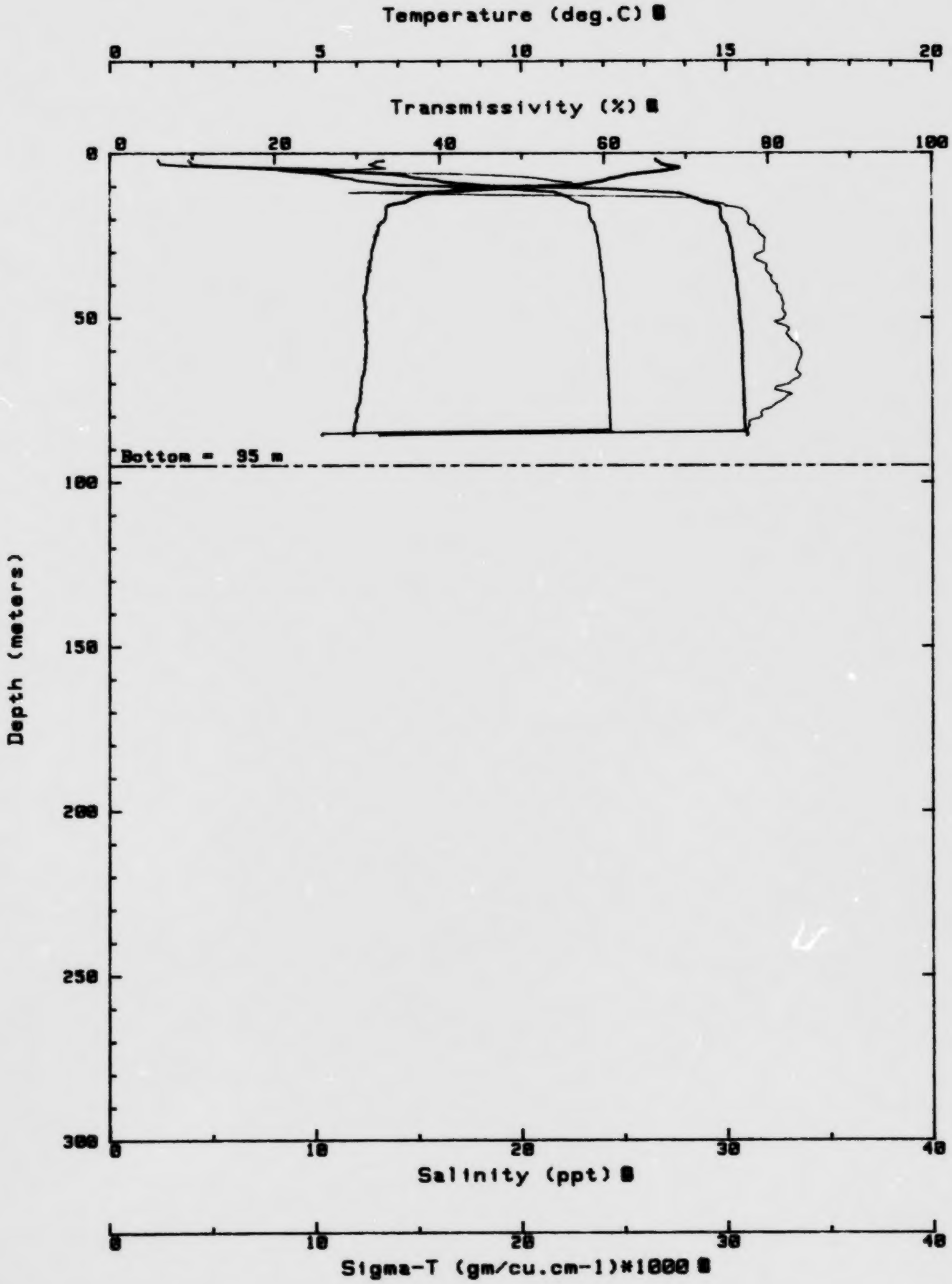
Survey Area : ALICE ARM
Station : N-8

Date : 82/07/09
Time : 0109 PDT



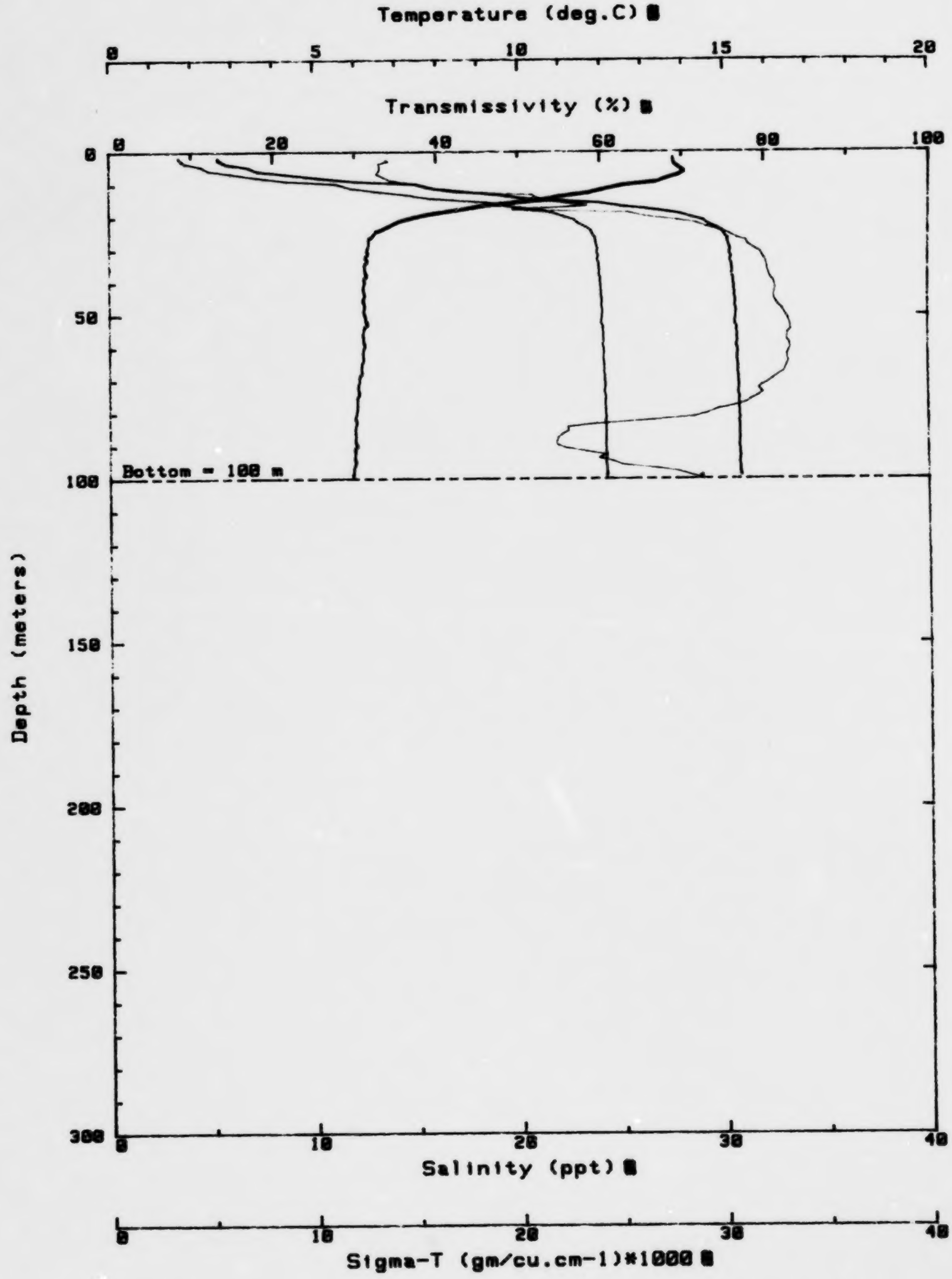
Survey Area : ALICE ARM
Station : N-8

Date : 82/07/11
Time : 0115 PDT



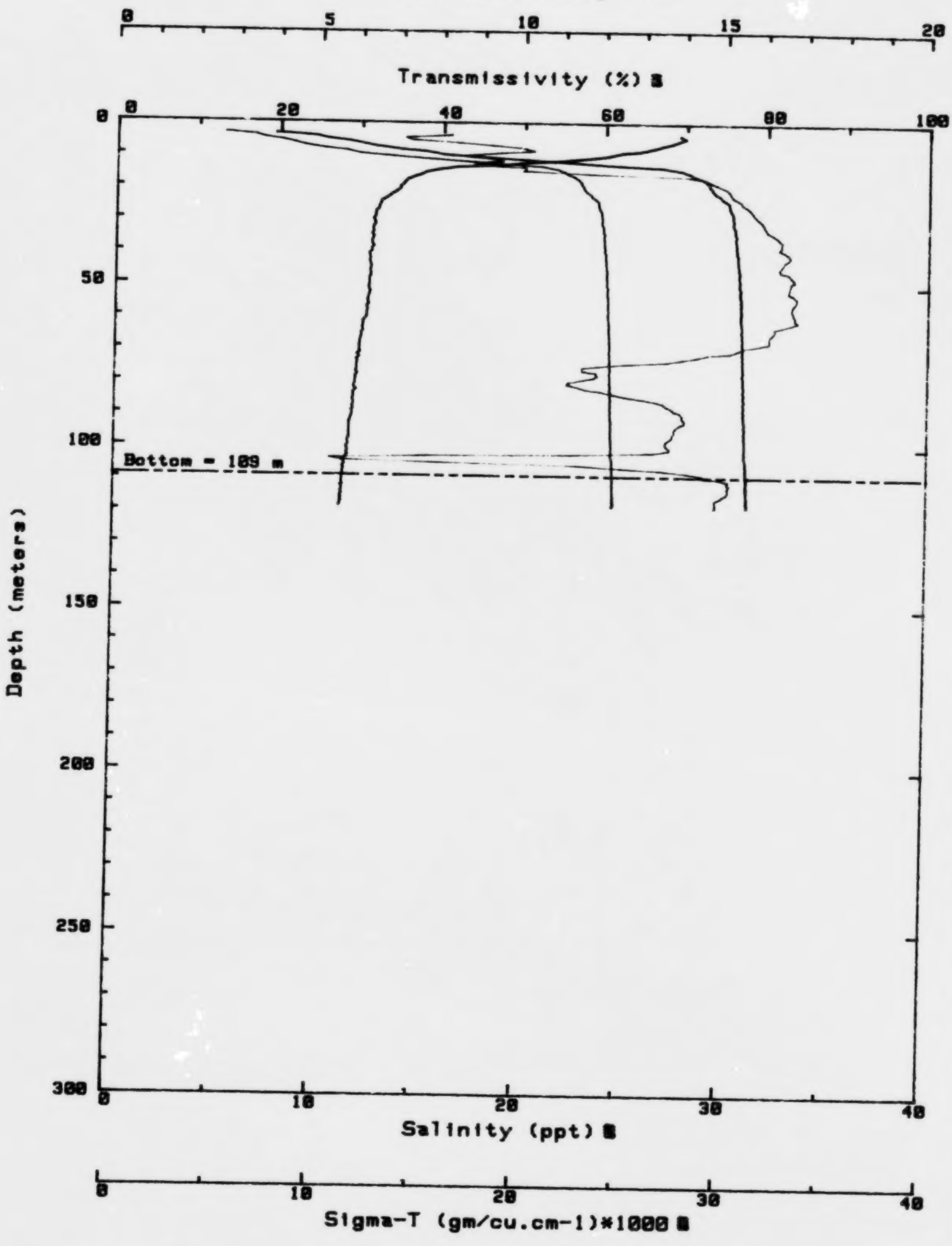
Survey Area : ALICE ARM
Station : N-8

Date : 82/07/11
Time : 1819 PDT



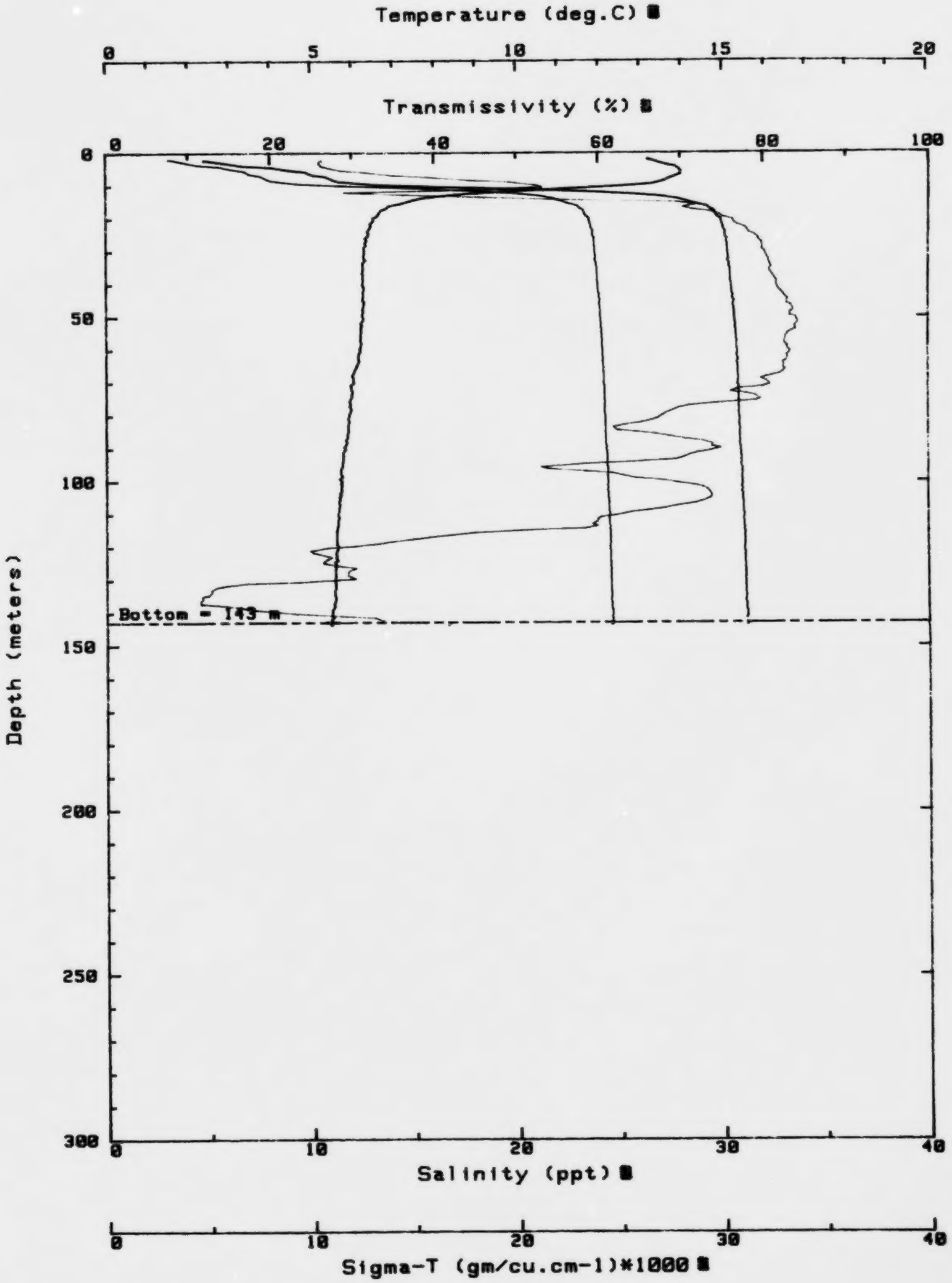
Survey Area : ALICE ARM
Station : N-8

Date : 82/07/12
Time : 2311 PDT



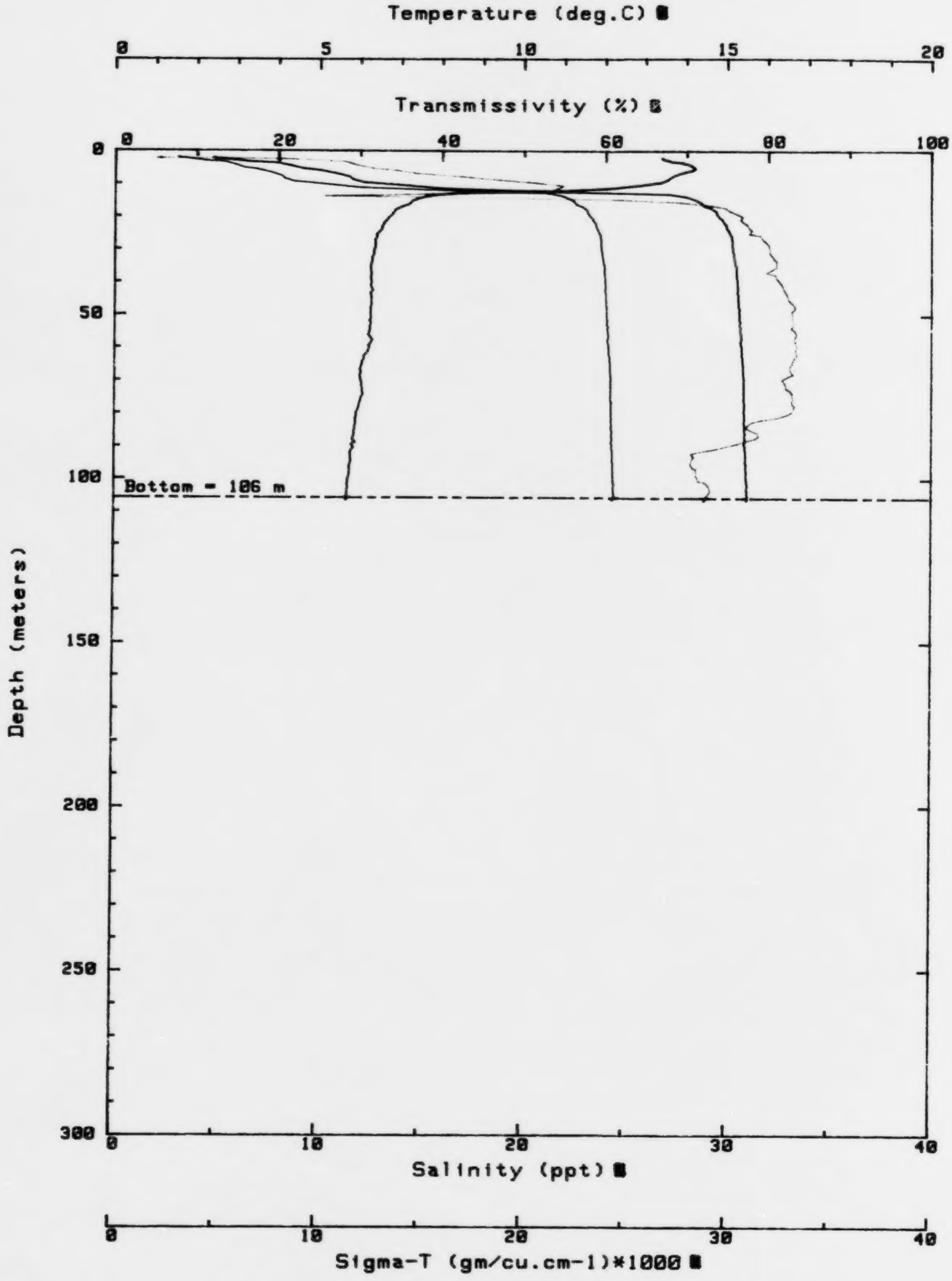
Survey Area : ALICE ARM
Station : M-9

Date : 82/07/08
Time : 2015 PDT



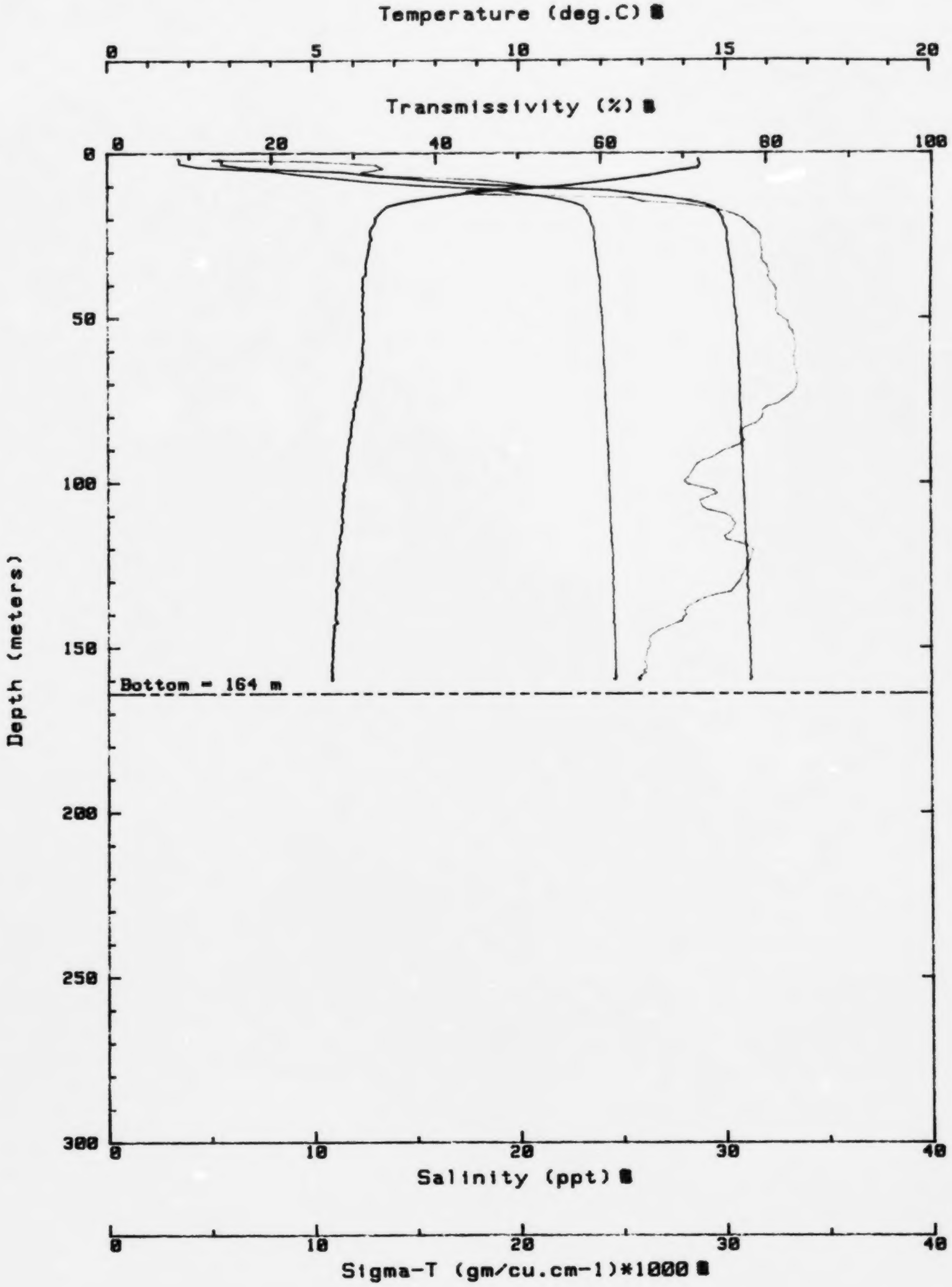
Survey Area : ALICE ARM
Station : M-9

Date : 82/07/08
Time : 2031 PDT



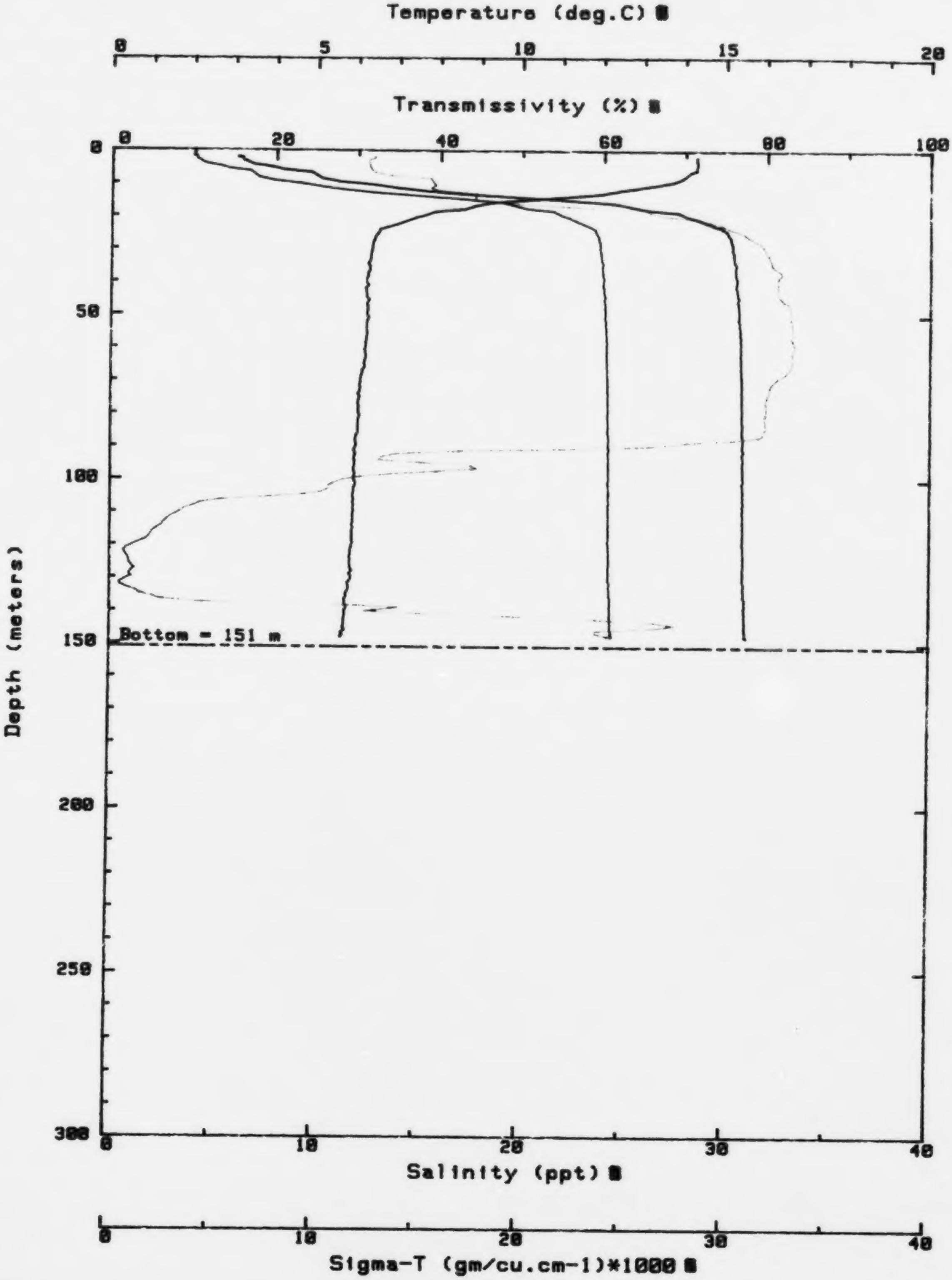
Survey Area : ALICE ARM
Station : M-9

Date : 82/07/11
Time : 0058 PDT



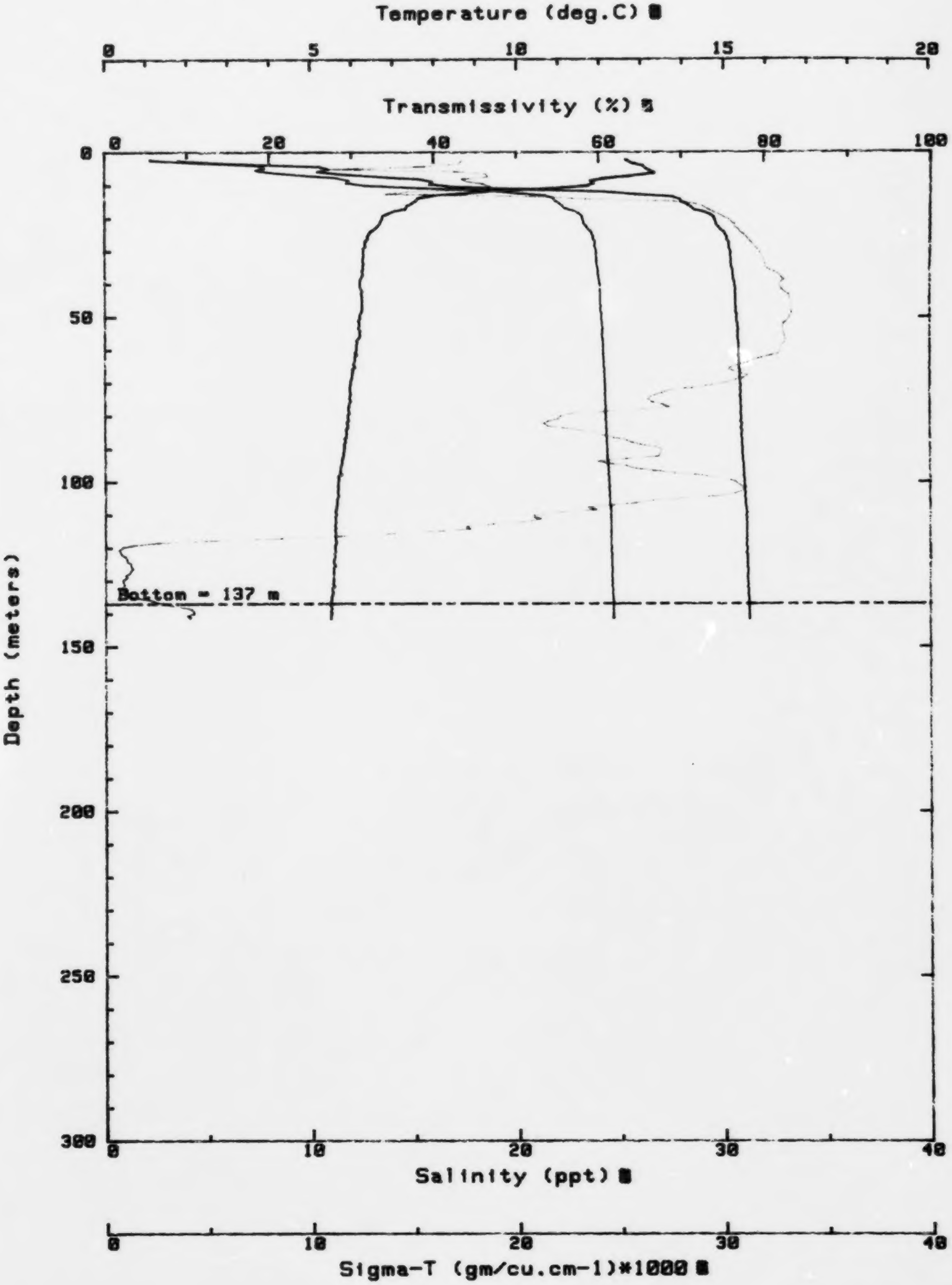
Survey Area : ALICE ARM
Station : M-9

Date : 82/07/11
Time : 1829 PDT



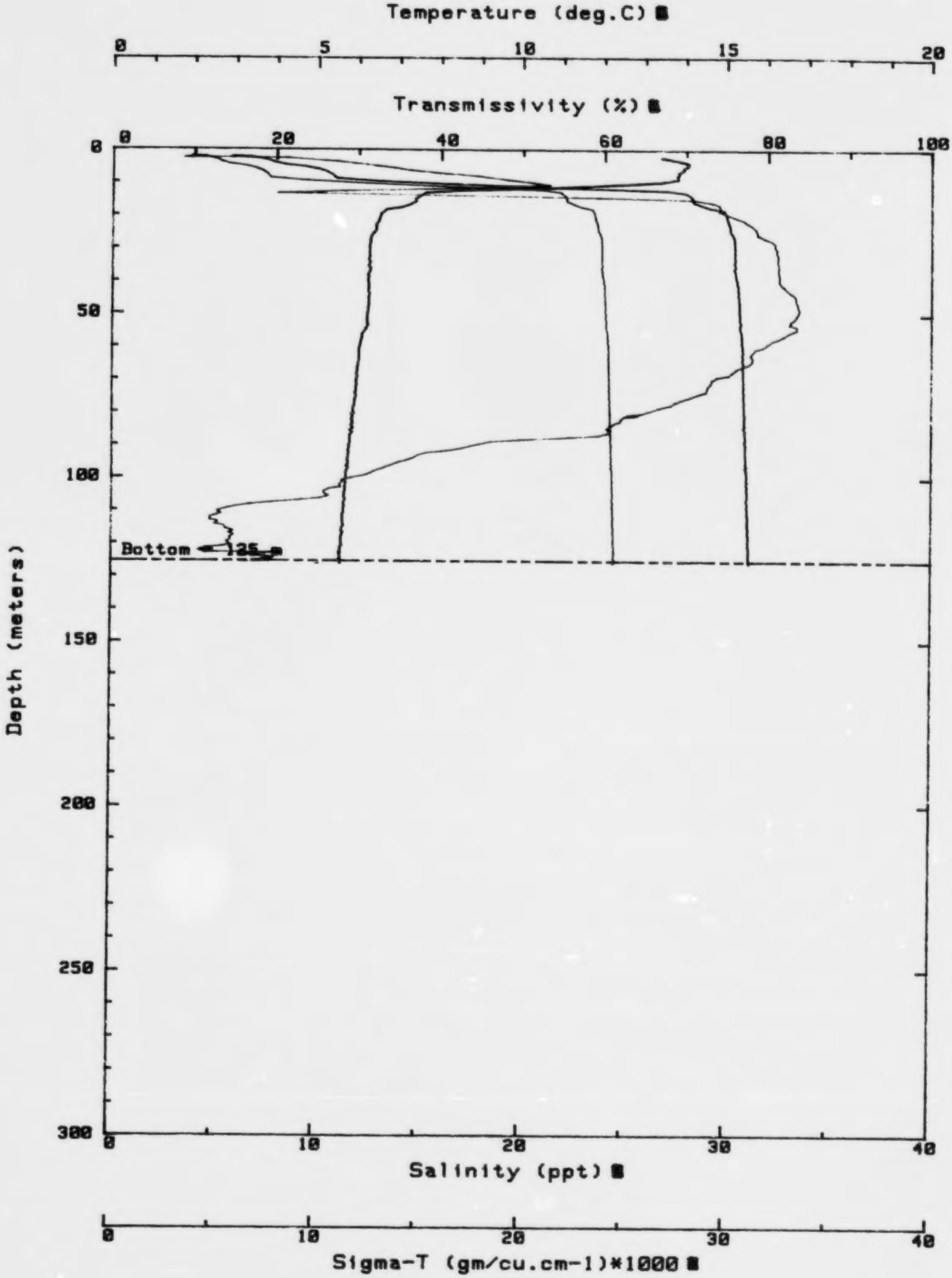
Survey Area : ALICE ARM
Station : M-9

Date : 82/07/12
Time : 2323 PDT



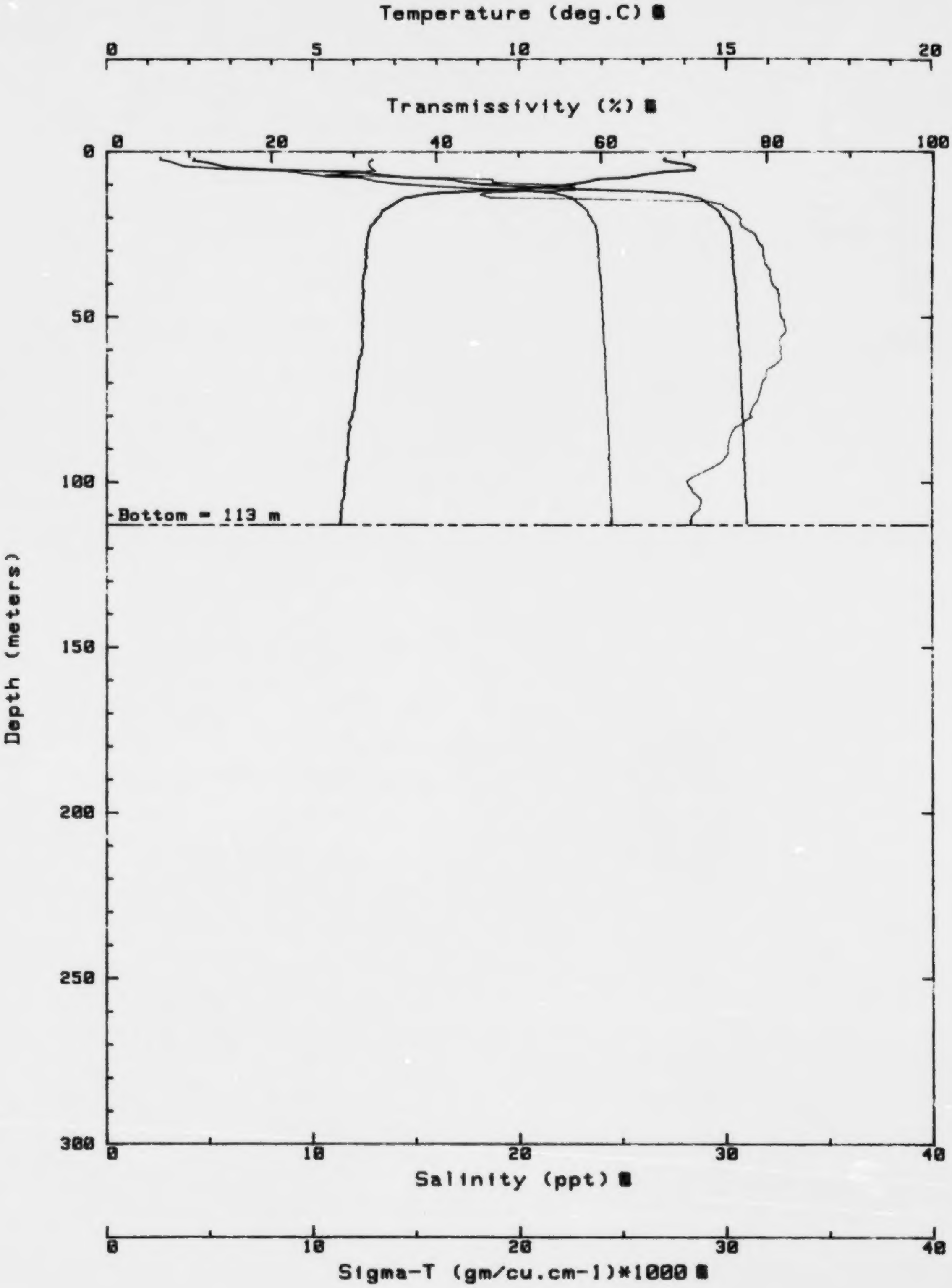
Survey Area : ALICE ARM
Station : L-10

Date : 82/07/08
Time : 2055 PDT



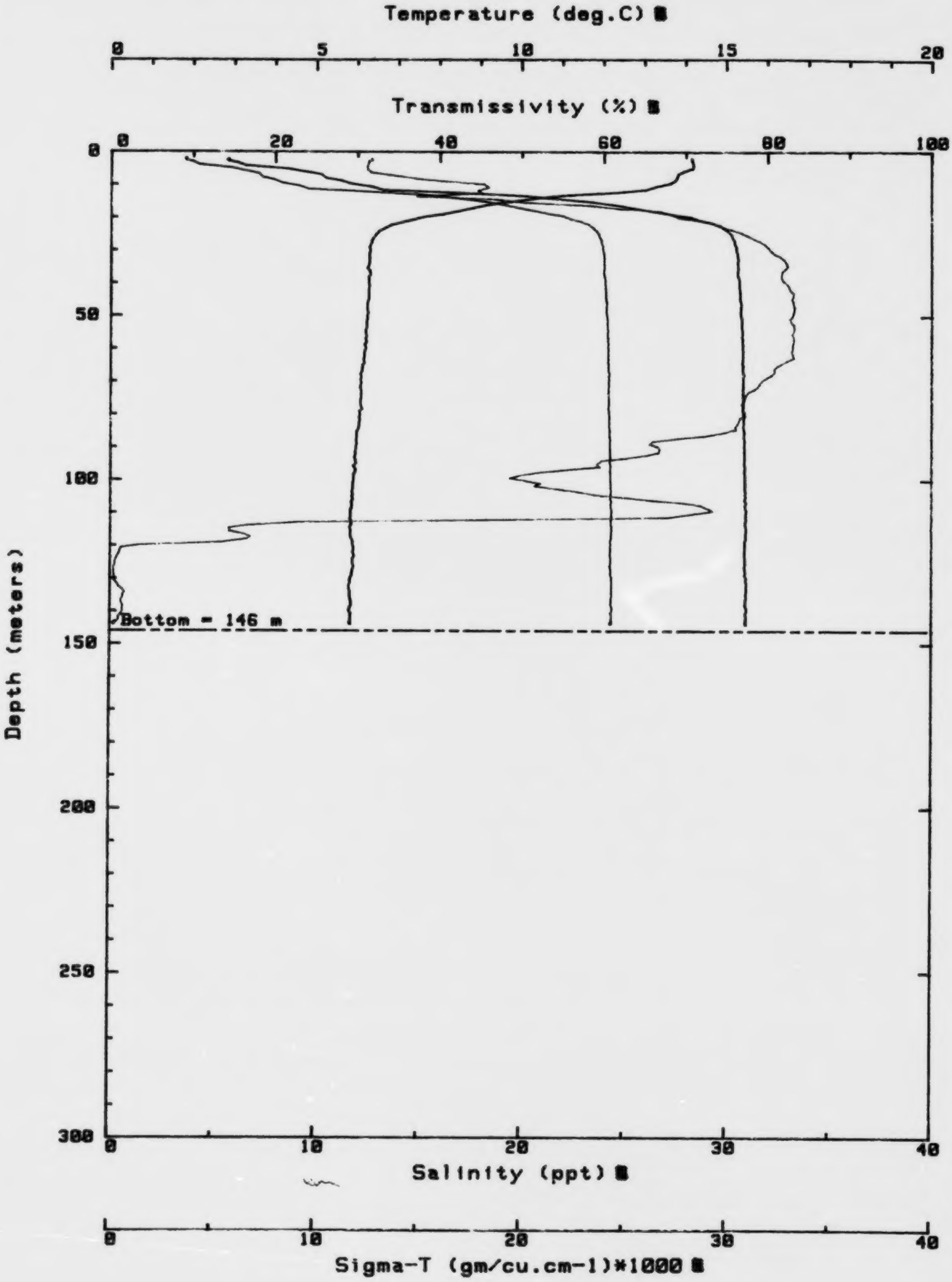
Survey Area : ALICE ARM
Station : L-10

Date : 82/07/11
Time : 0040 PDT



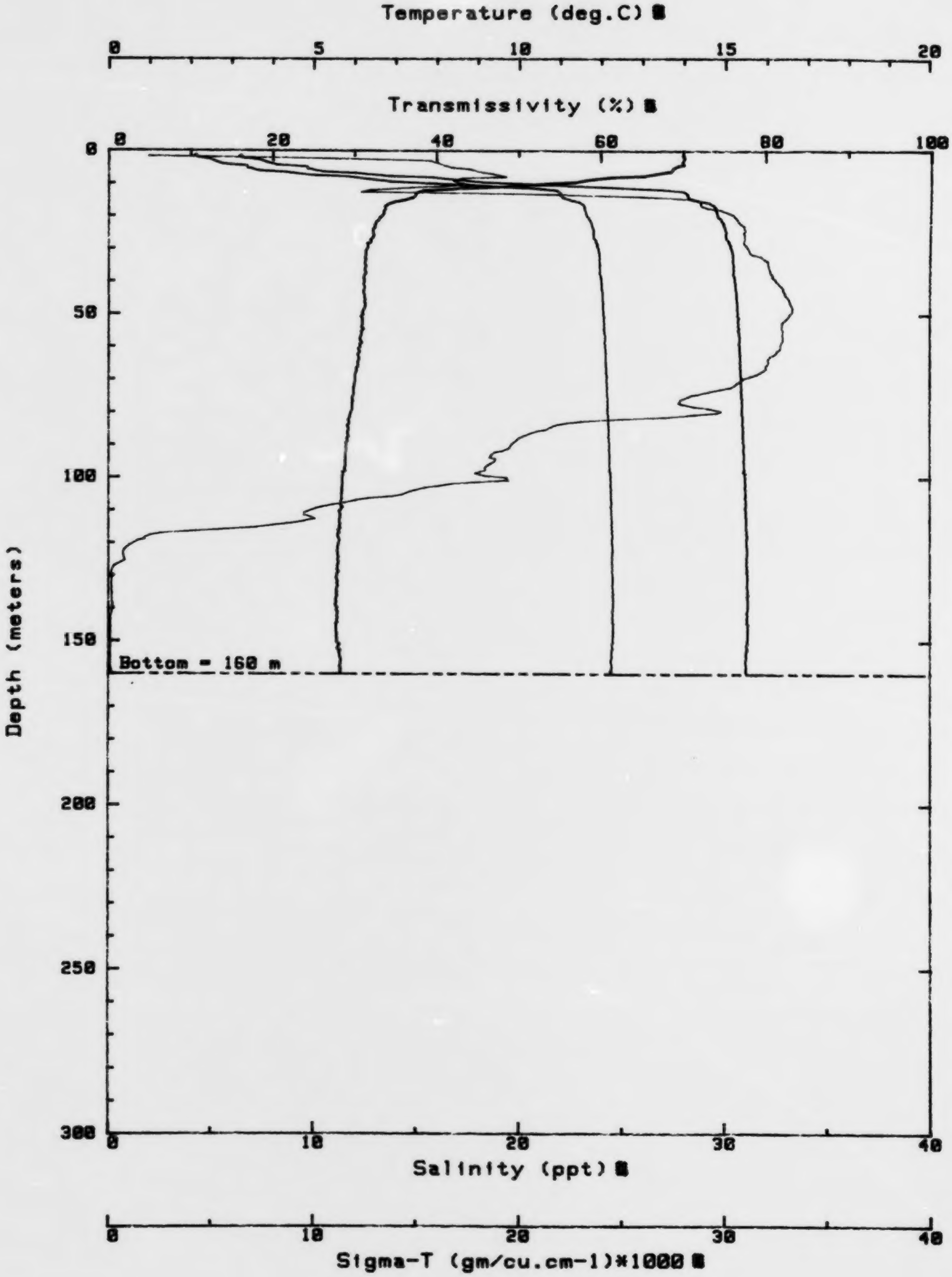
Survey Area : ALICE ARM -
Station : L-10

Date : 82/07/11
Time : 1853 PDT



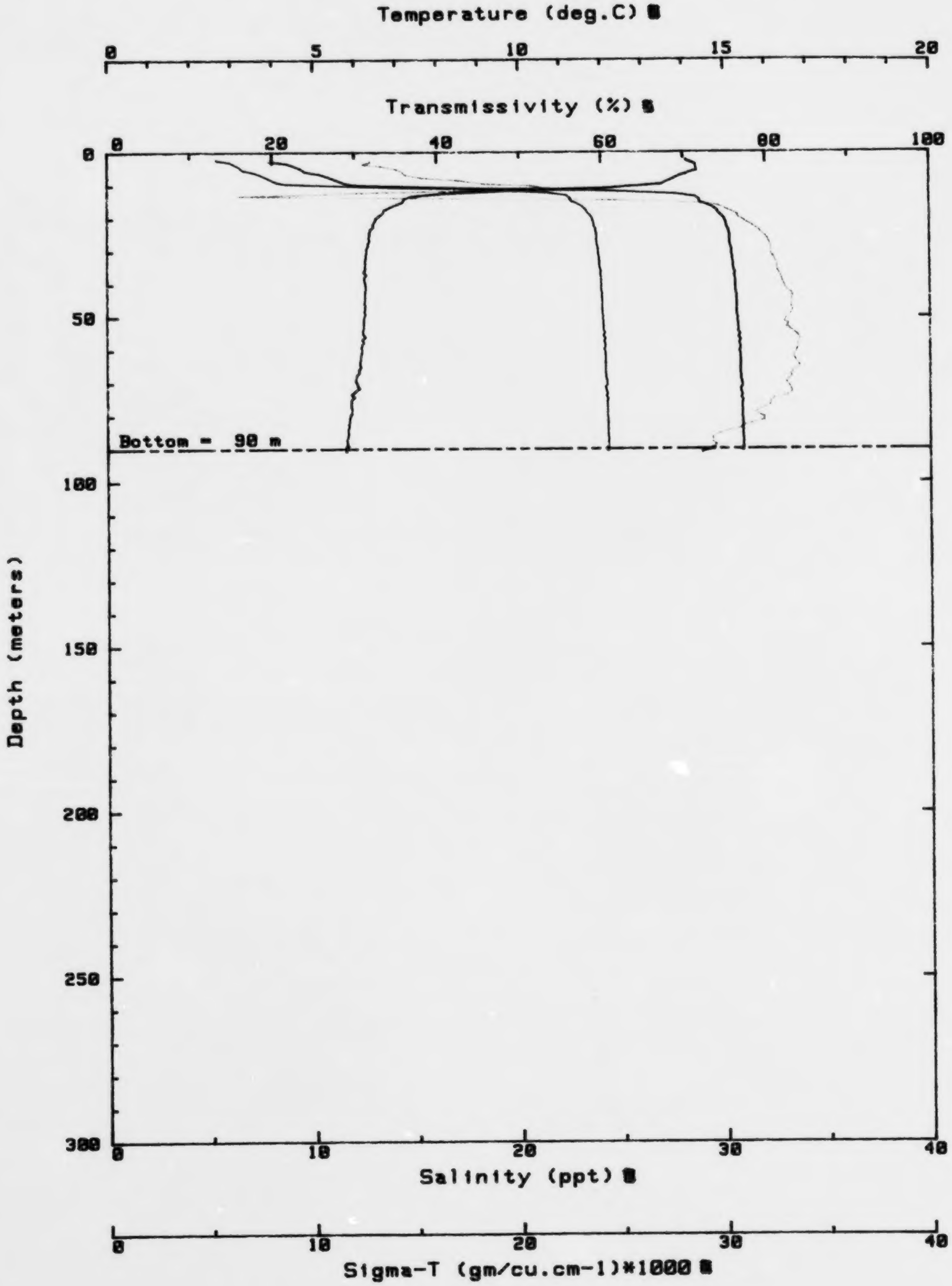
Survey Area : ALICE ARM
Station : L-10

Date : 82/07/12
Time : 2352 PDT



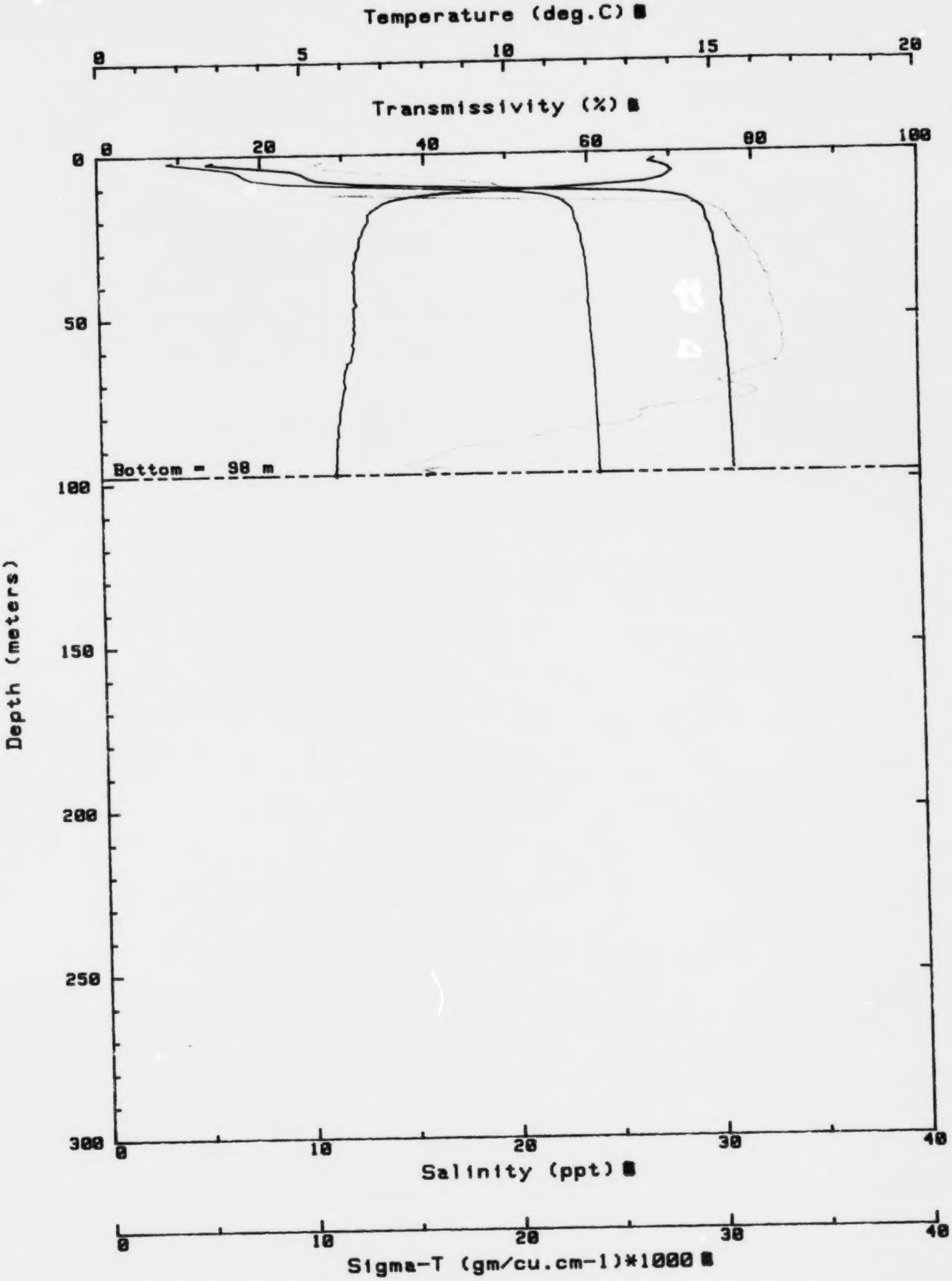
Survey Area : ALICE ARM
Station : 0-10

Date : 82/07/08
Time : 2219 PDT



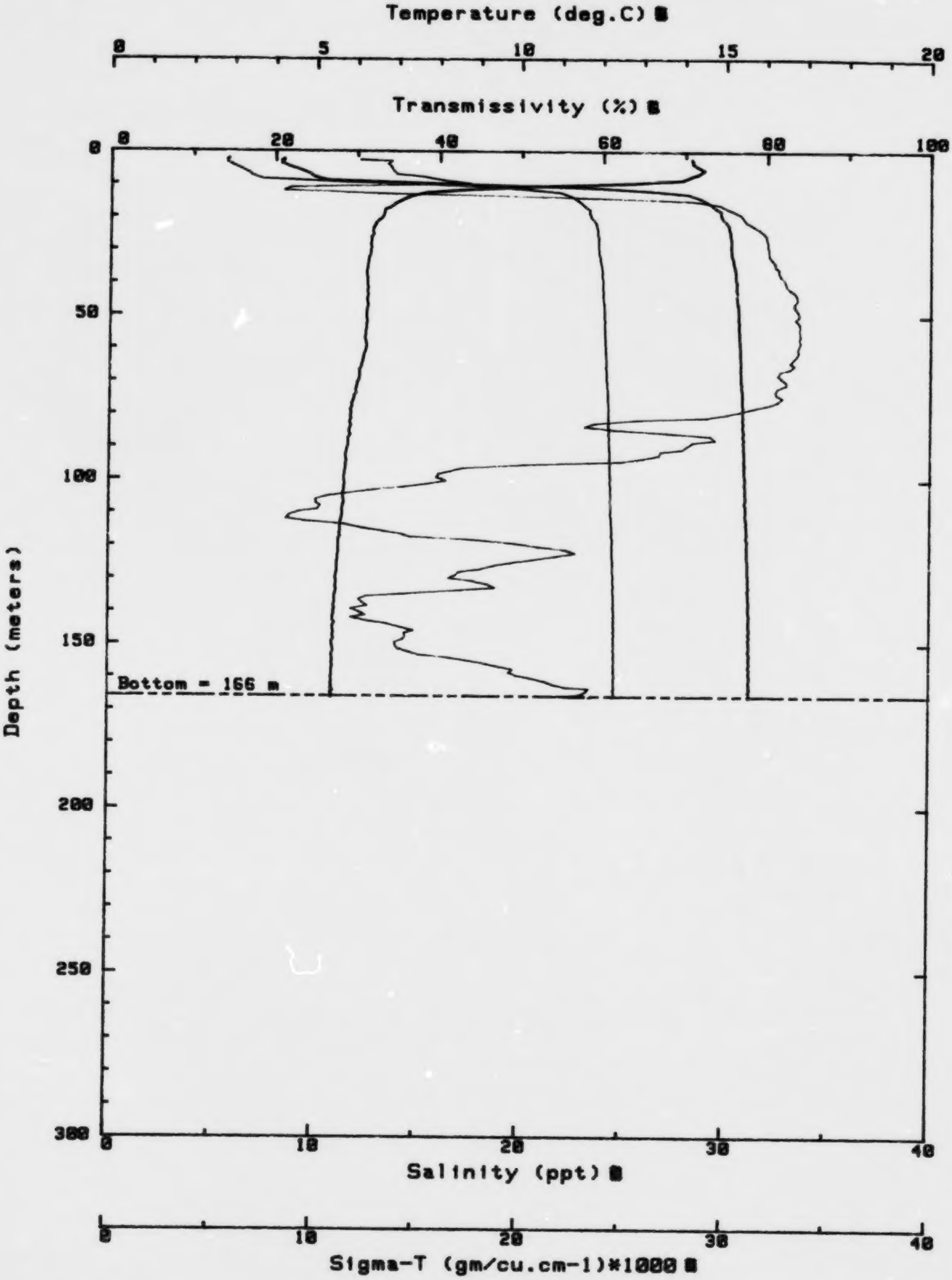
Survey Area : ALICE ARM
Station : M-12

Date : 82/07/08
Time : 2119 PDT



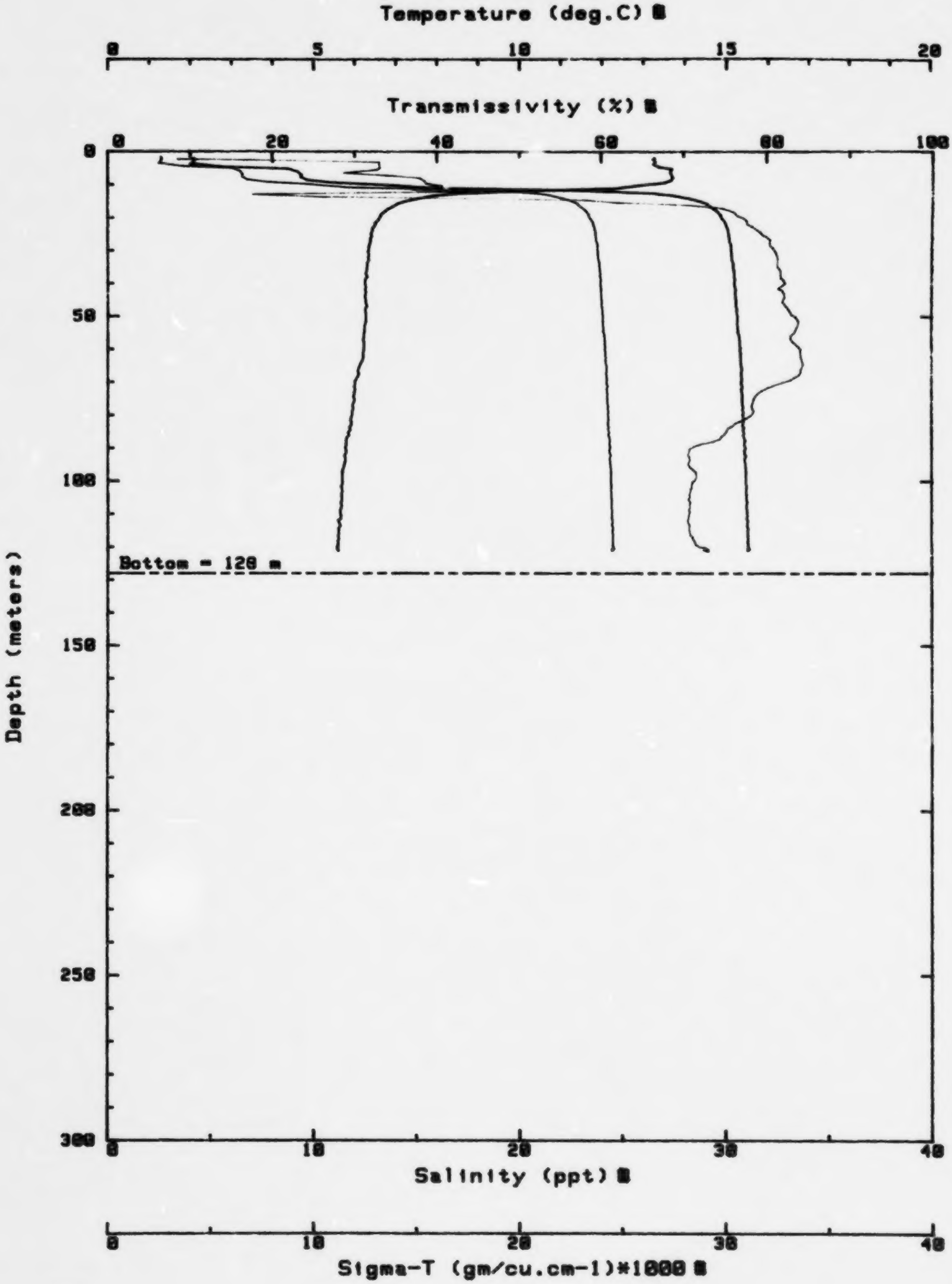
Survey Area : ALICE ARM
Station : N-11

Date : 82/07/08
Time : 2132 PDT



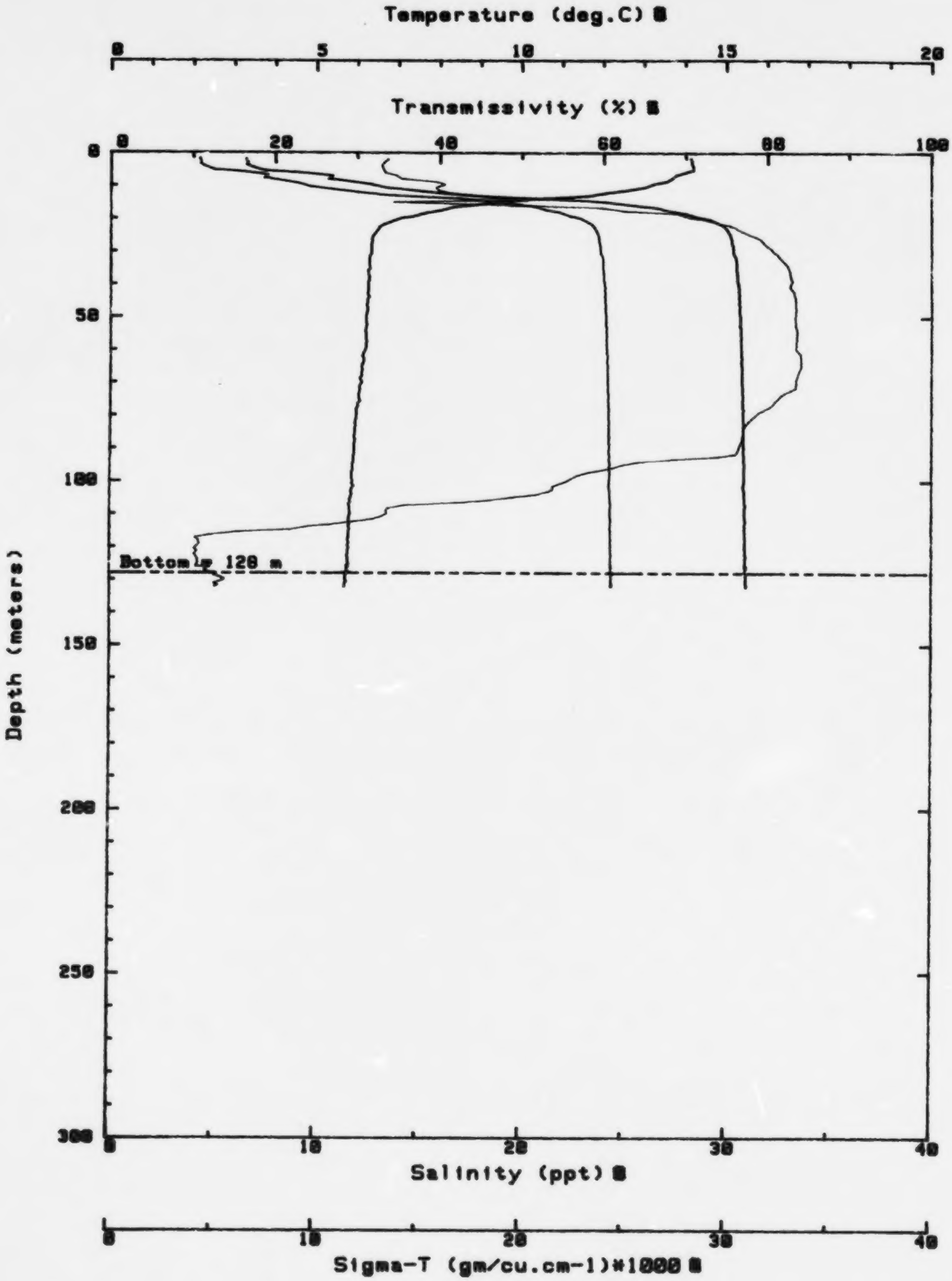
Survey Area : ALICE ARM
Station : N-14

Date : 82/07/10
Time : 2346 PDT



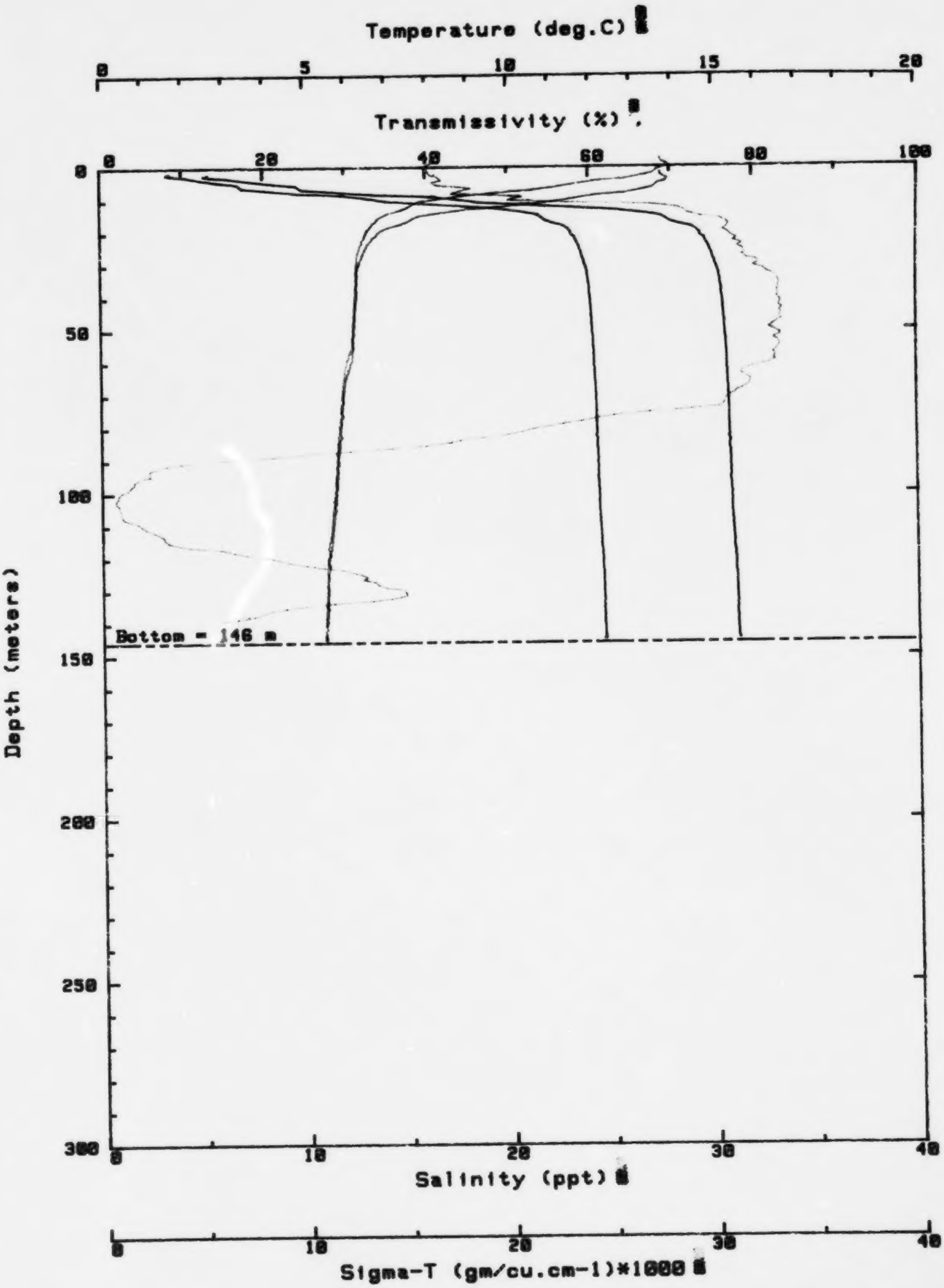
Survey Area : ALICE ARM
Station : N-14

Date : 82/07/11
Time : 1913 PDT



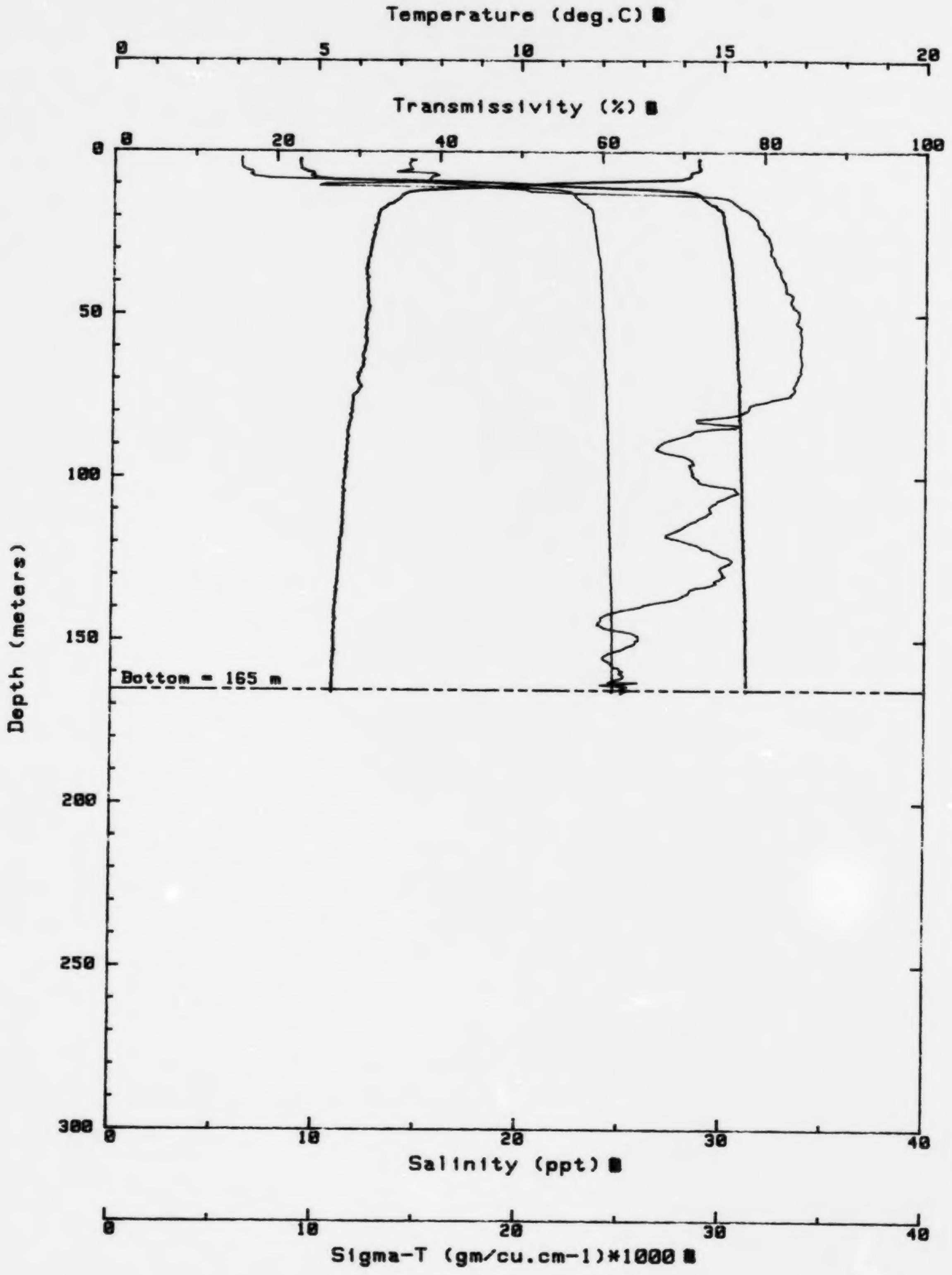
Survey Area : ALICE ARM
Station : N-14

Date : 82/07/12
Time : 2226 PDT



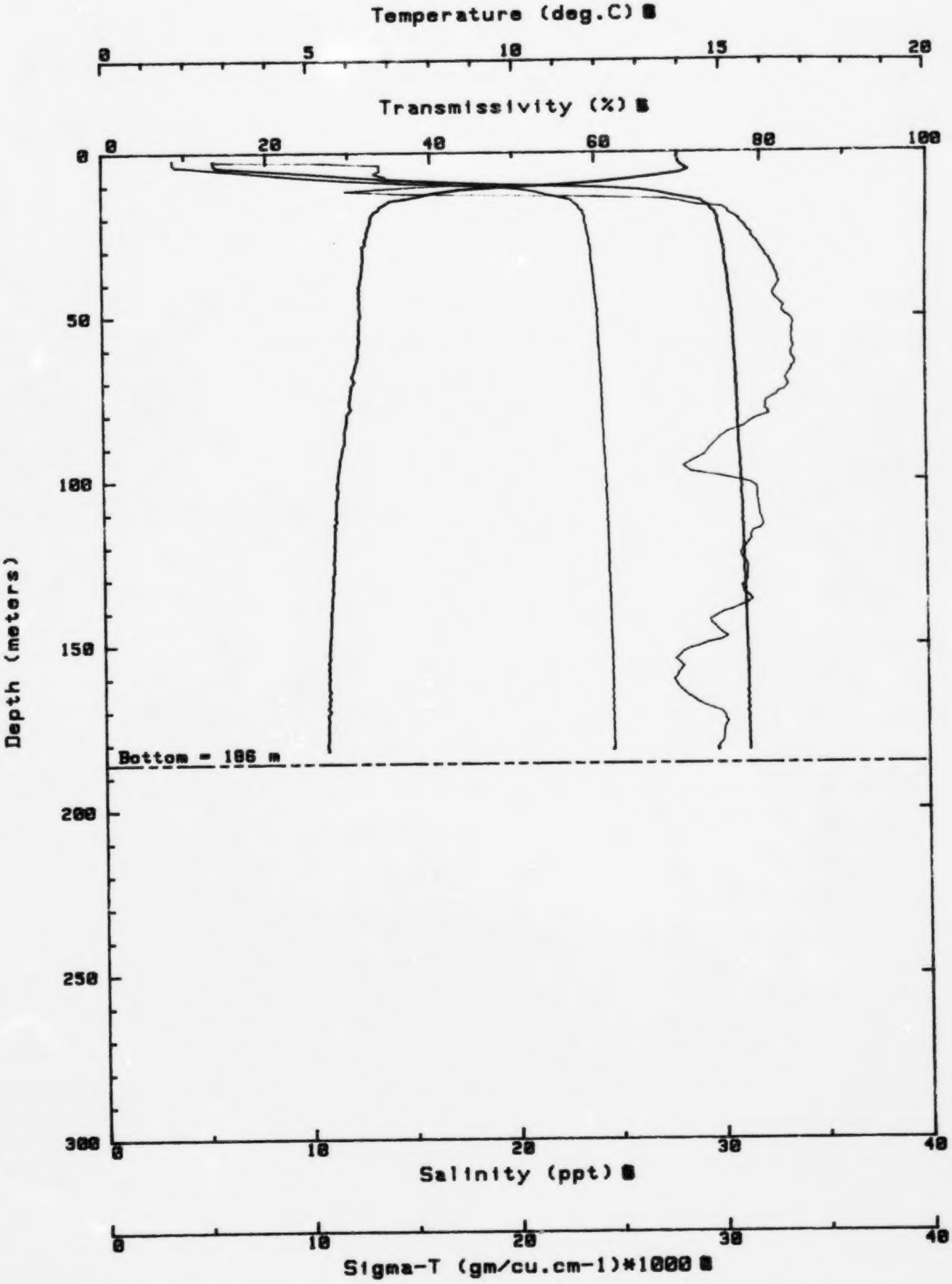
Survey Area : ALICE ARM
Station : P-12

Date : 82/07/08
Time : 2230 PDT



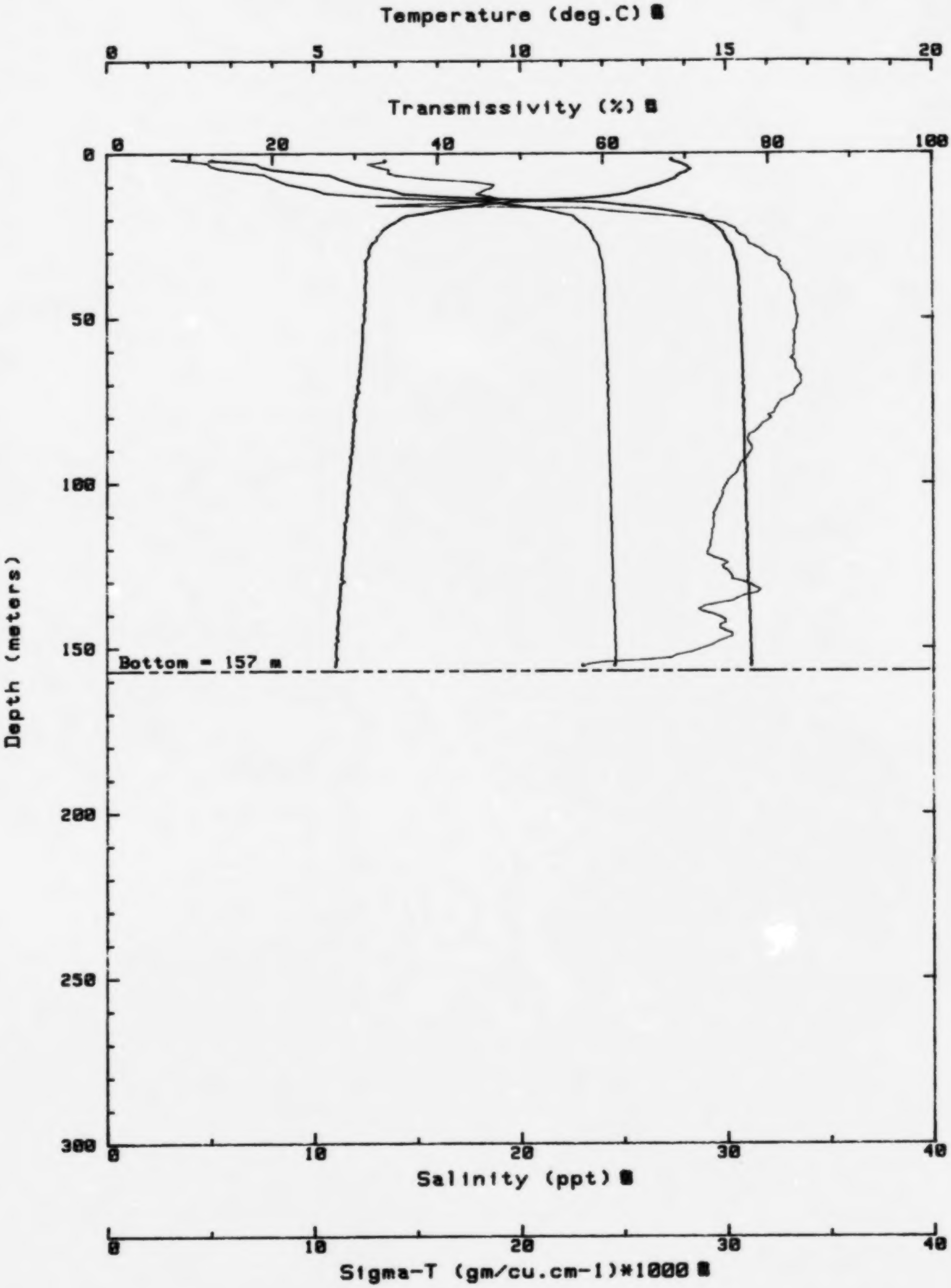
Survey Area : ALICE ARM
Station : P-12

Date : 82/07/11
Time : 0014 PDT



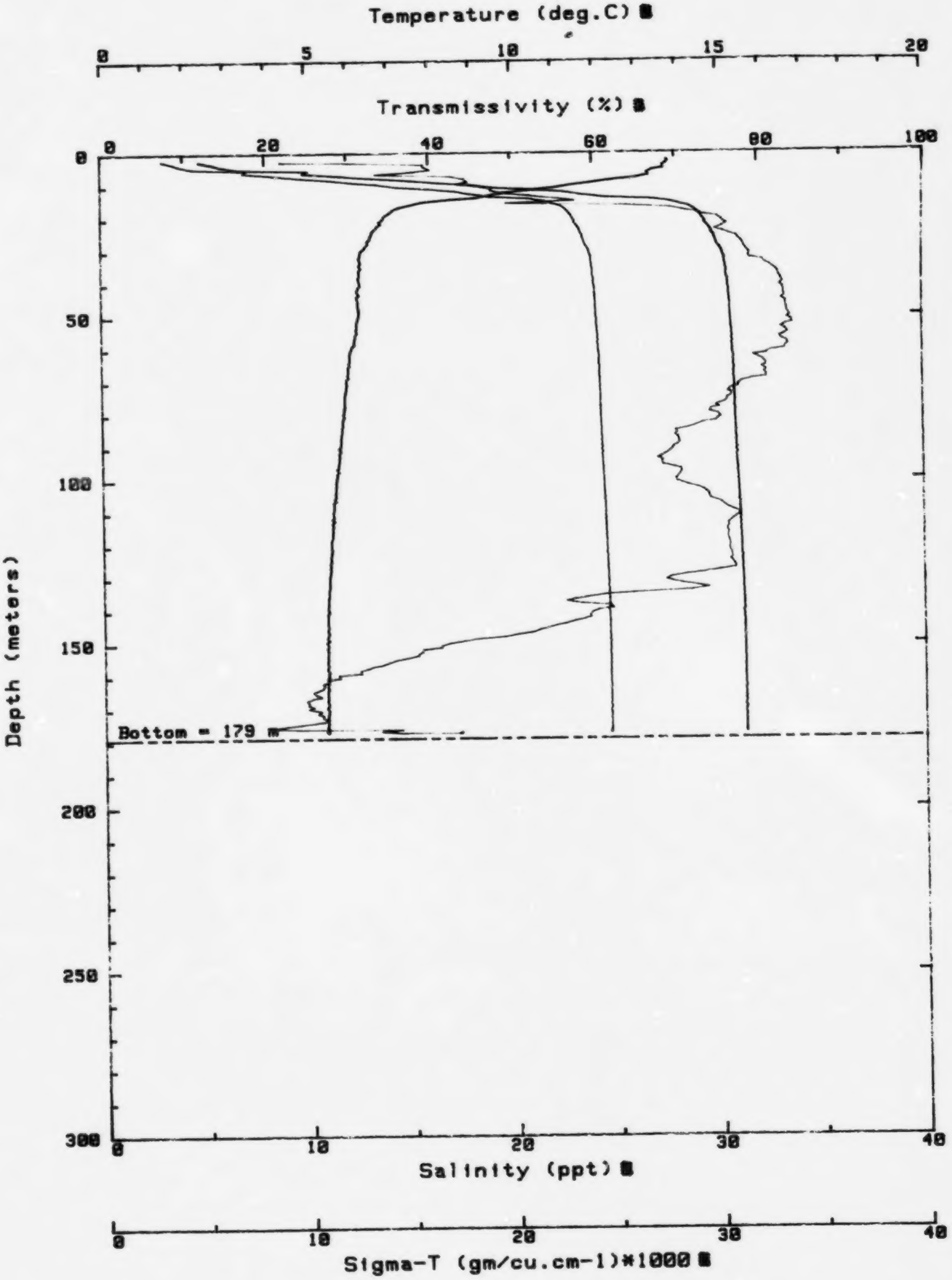
Survey Area : ALICE ARM
Station : P-12

Date : 82/07/11
Time : 1930 PDT



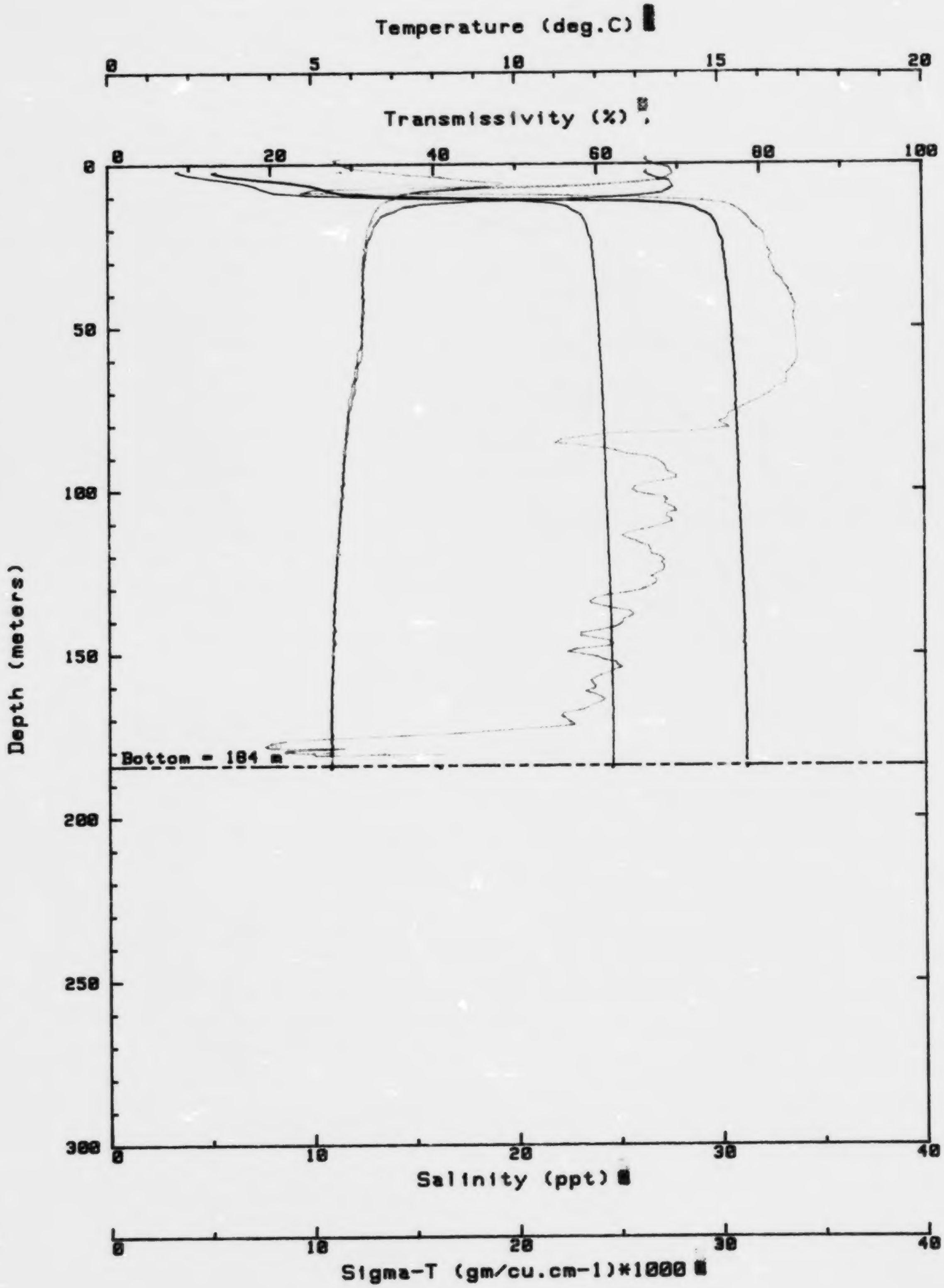
Survey Area : ALICE ARM
Station : P-12

Date : 82/07/12
Time : 2254 PDT



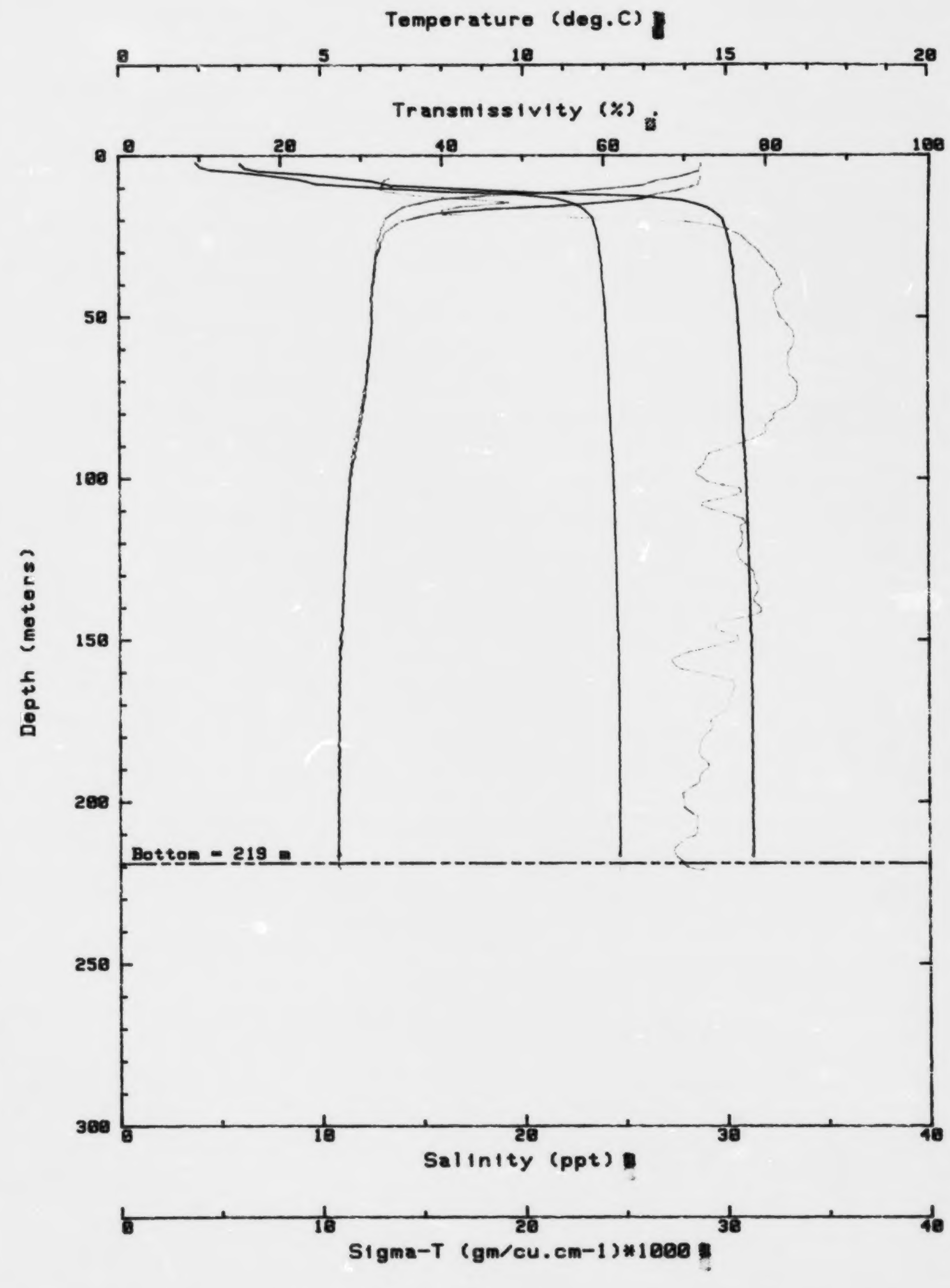
Survey Area : ALICE ARM
Station : O-13

Date : 82/07/08
Time : 2300 PDT



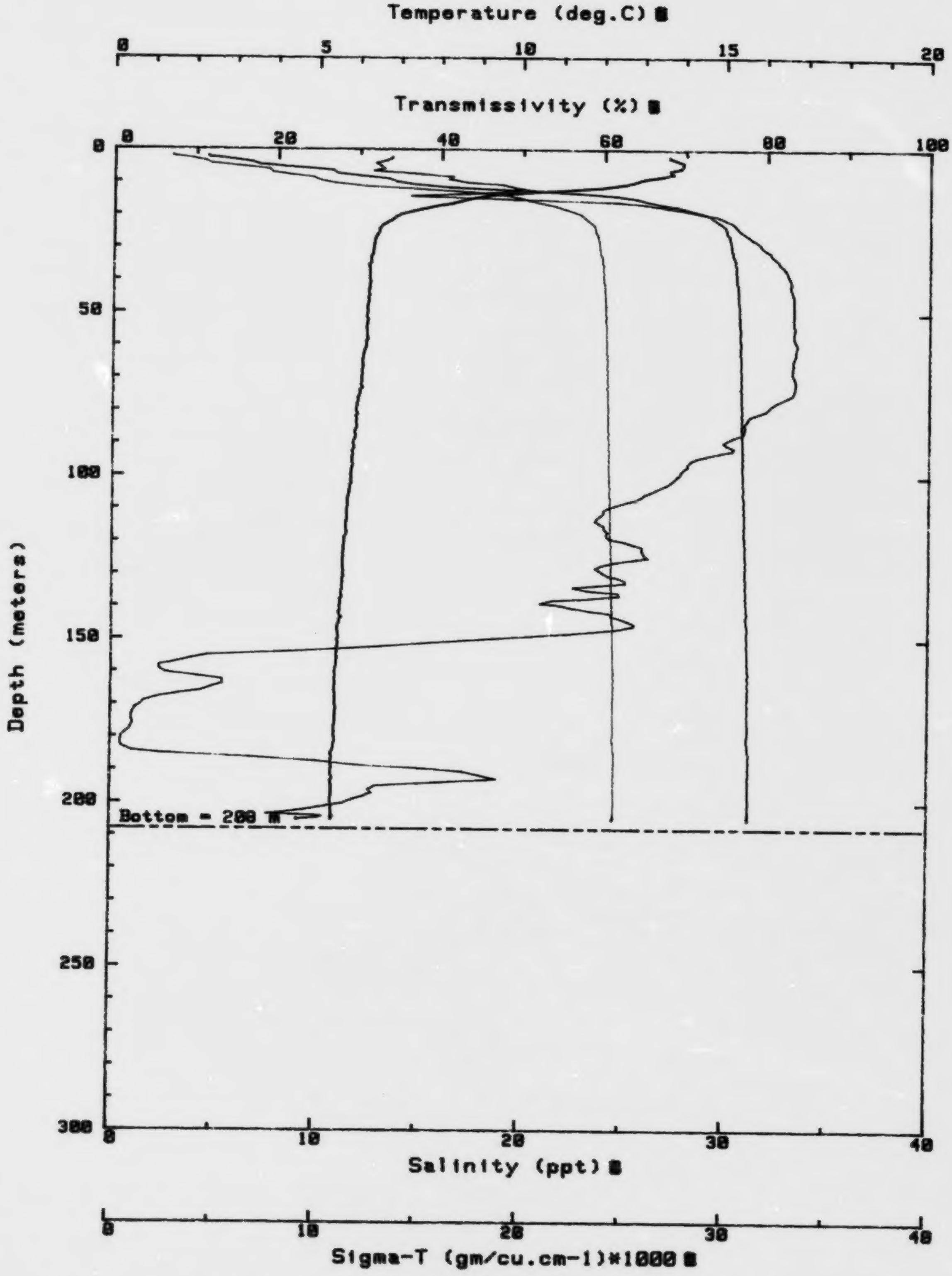
Survey Area : ALICE ARM
Station : O-13

Date : 82/07/11
Time : 0000 PDT



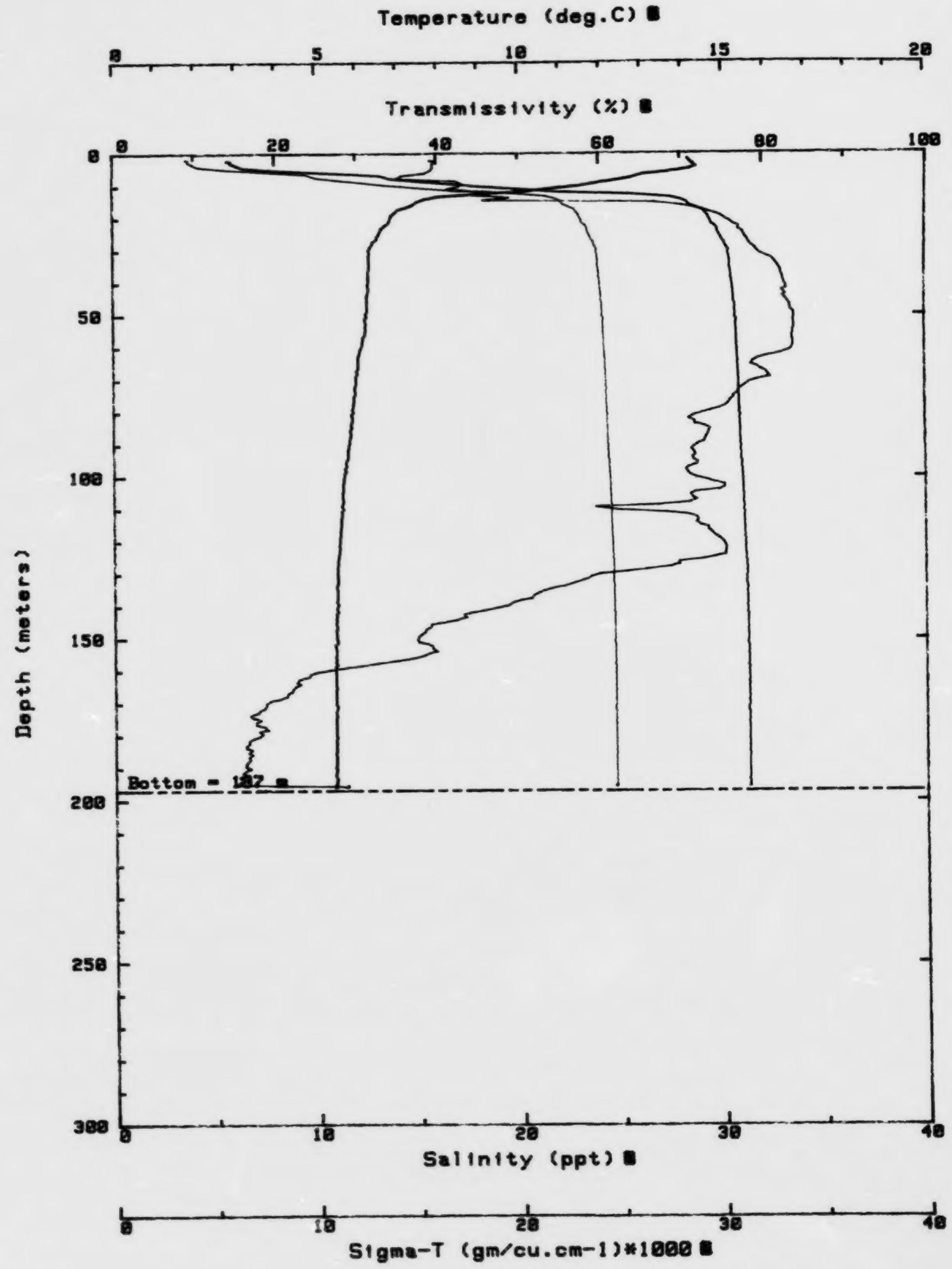
Survey Area : ALICE ARM
Station : 0-13

Date : 82/07/11
Time : 1944 PDT



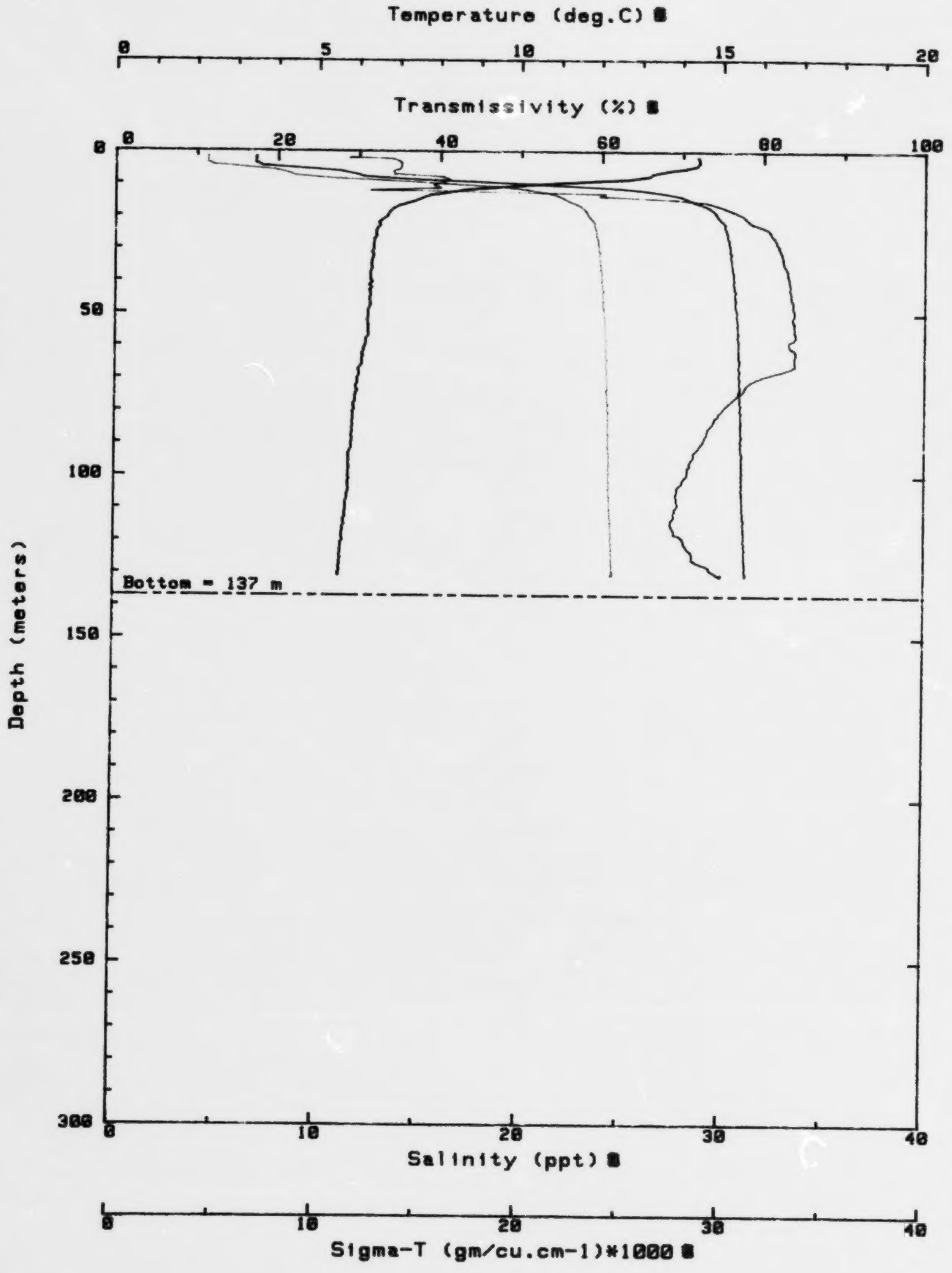
Survey Area : ALICE ARM
Station : O-13

Date : 82/07/12
Time : 2241 PDT



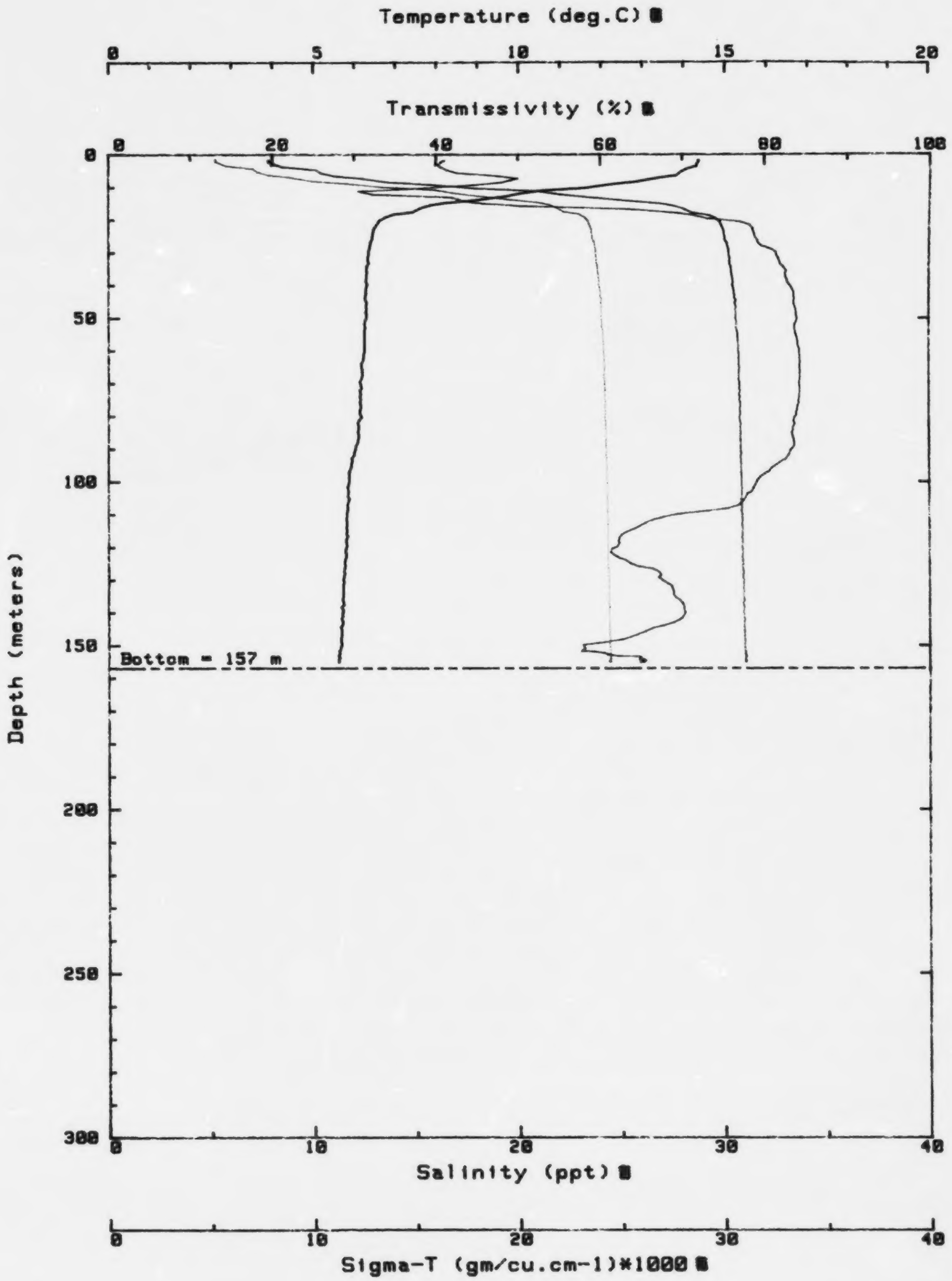
Survey Area : ALICE ARM
Station : O-20

Date : 82/07/10
Time : 2333 PDT



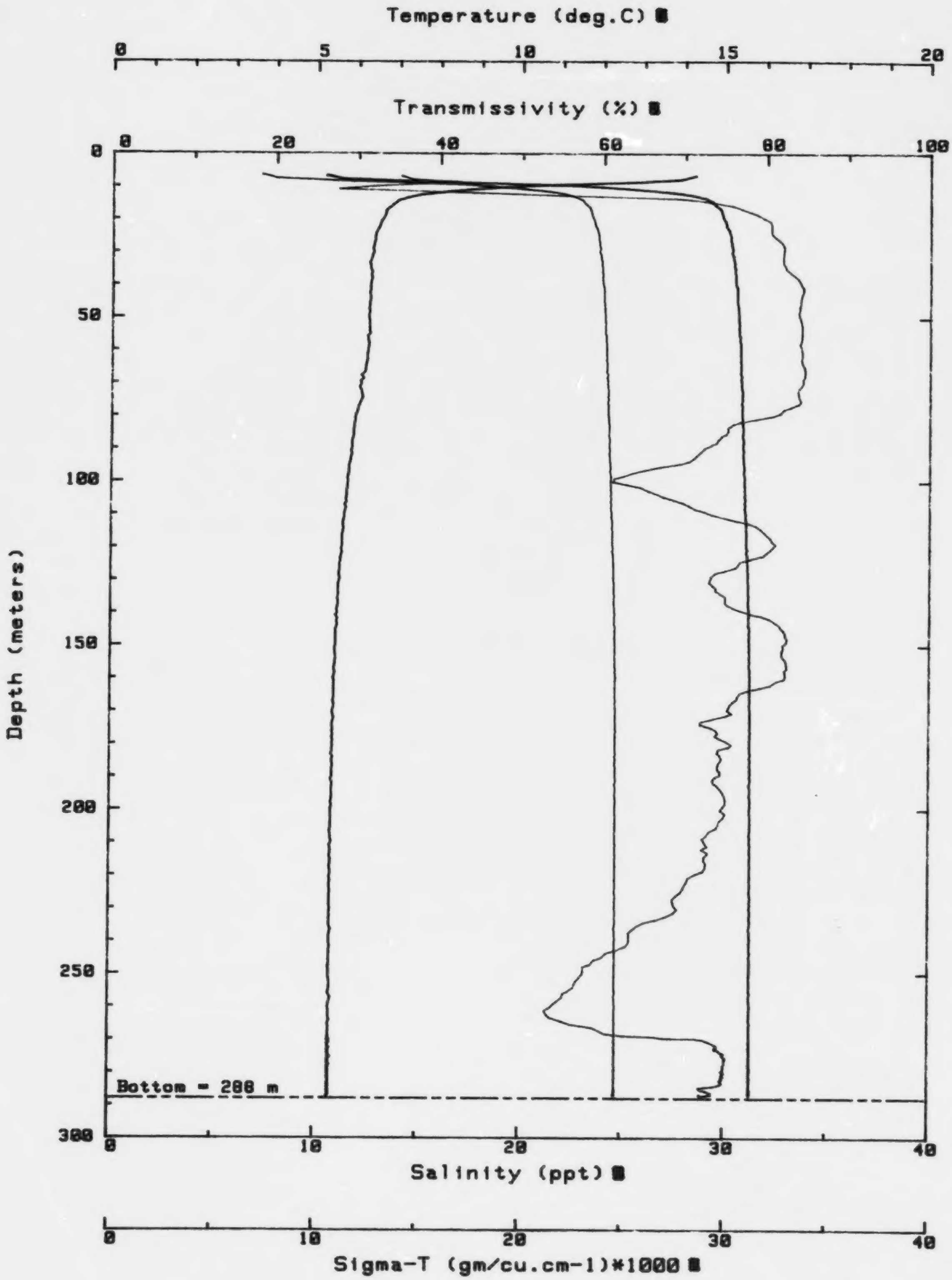
Survey Area : ALICE ARM
Station : O-20

Date : 82/07/12
Time : 1807 PDT



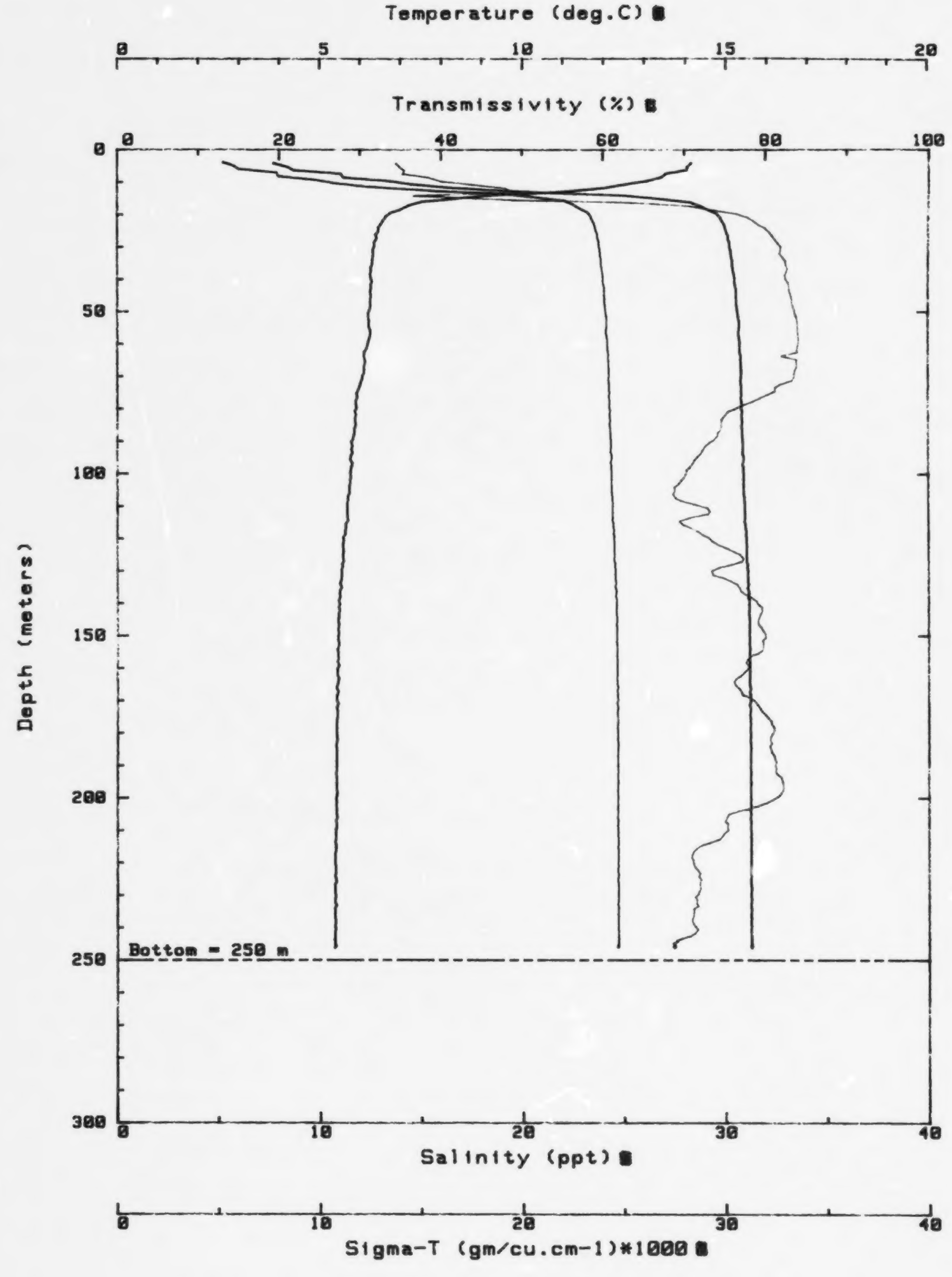
Survey Area : ALICE ARM
Station : Q-20

Date : 82/07/08
Time : 2319 PDT



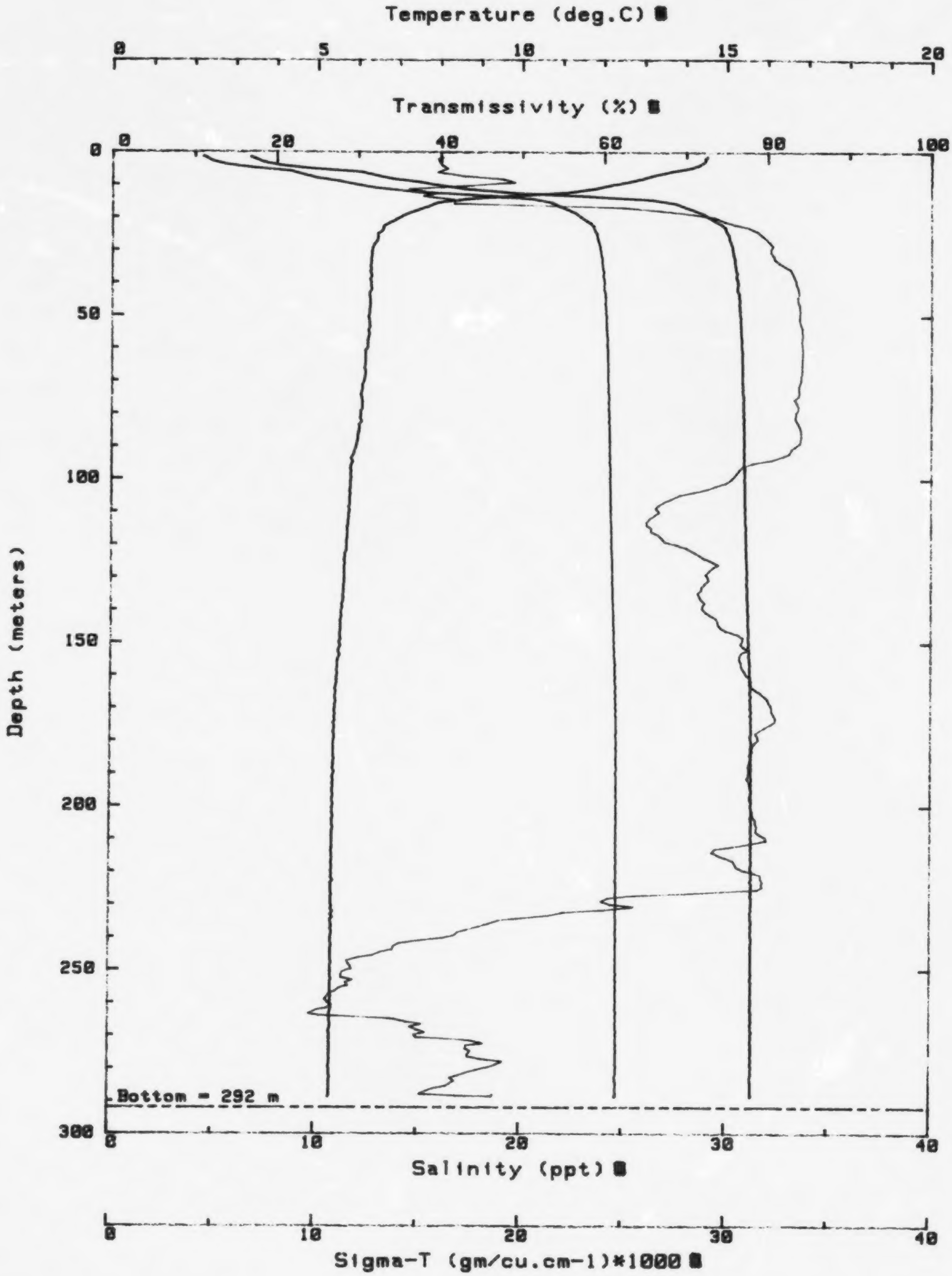
Survey Area : ALICE ARM
Station : Q-20

Date : 82/07/10
Time : 2302 PDT



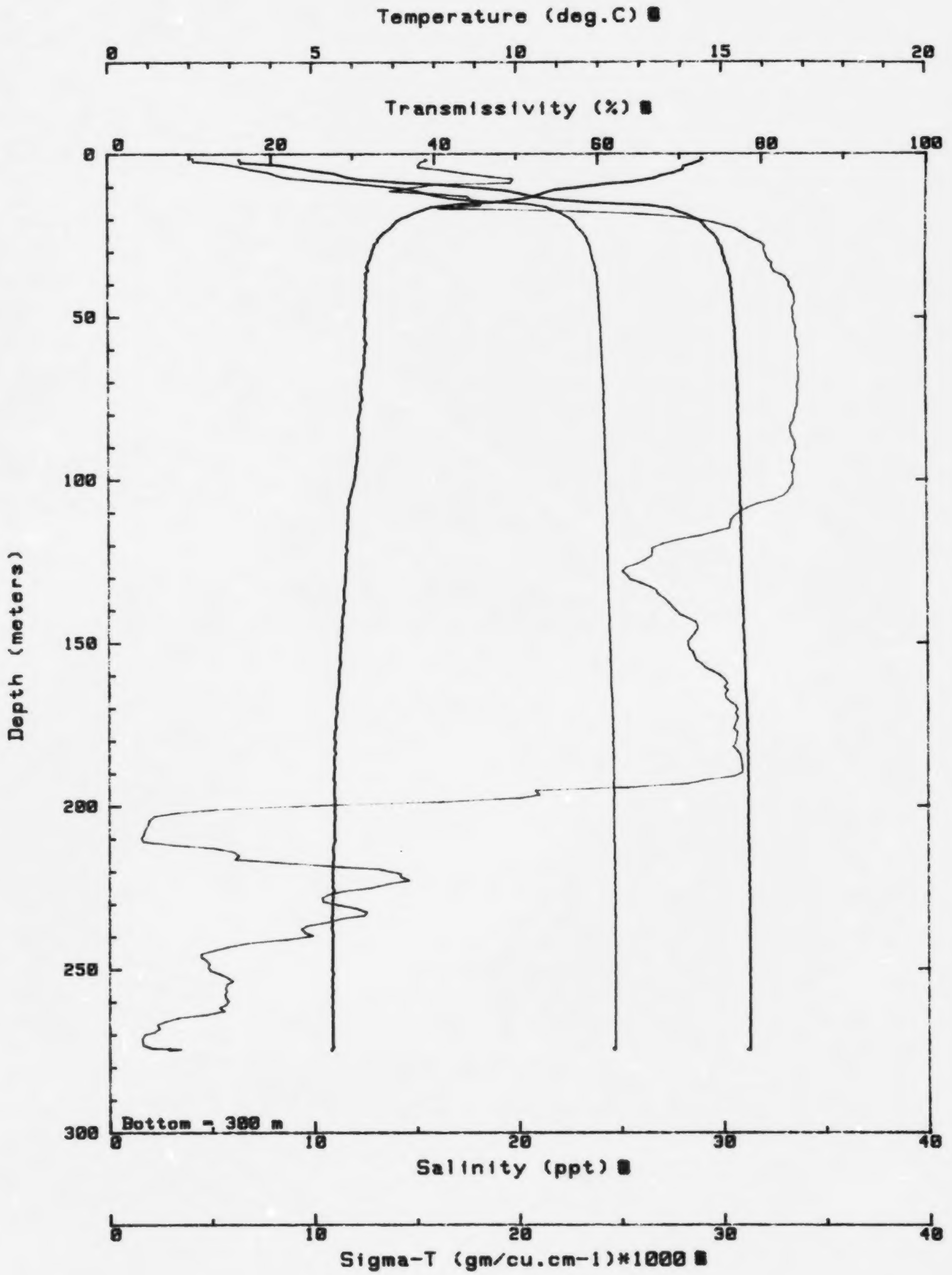
Survey Area : ALICE ARM
Station : Q-20

Date : 82/07/12
Time : 2001 PDT



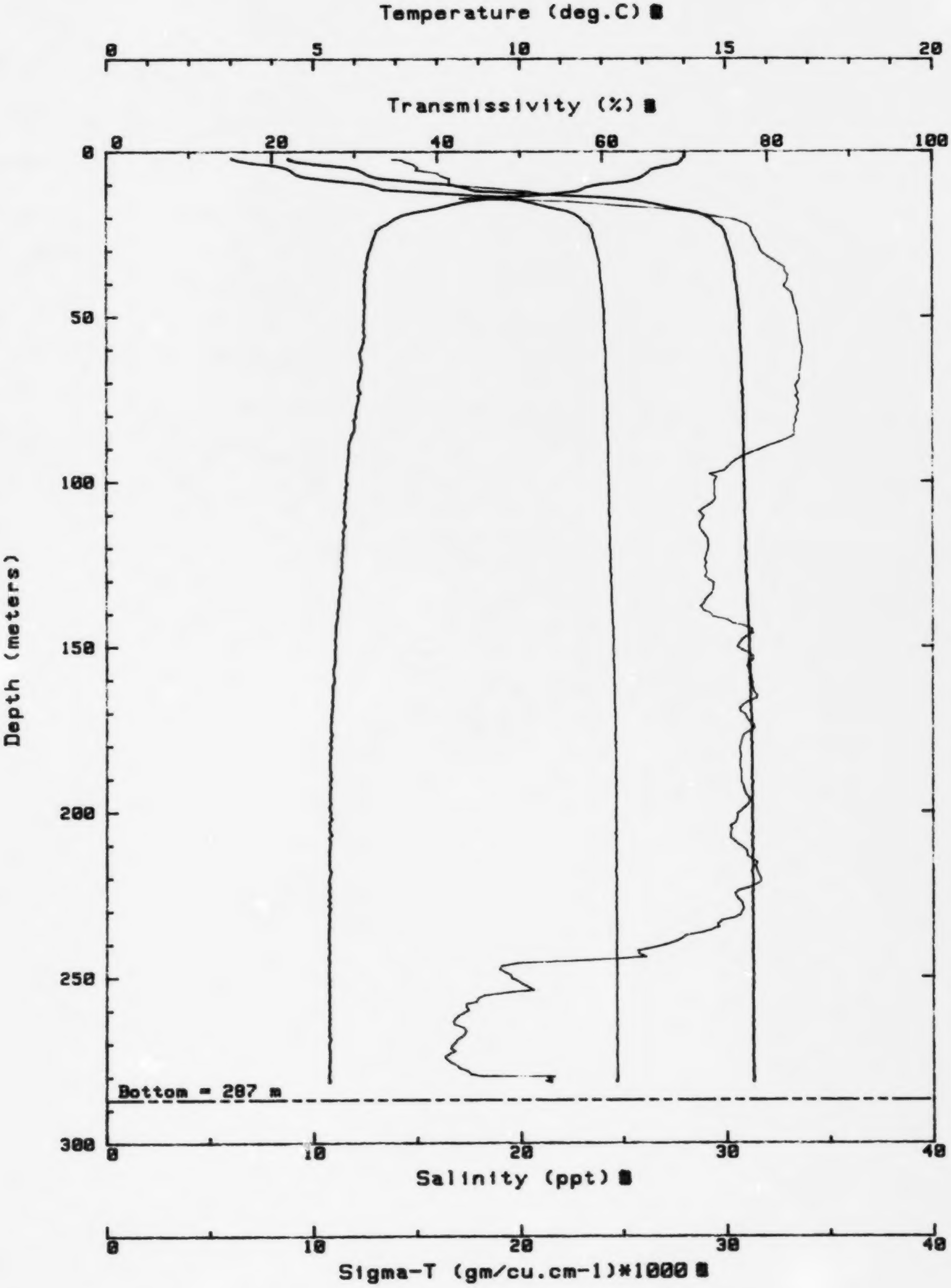
Survey Area : ALICE ARM
Station : Q-20

Date : 82/07/12
Time : 1828 PDT



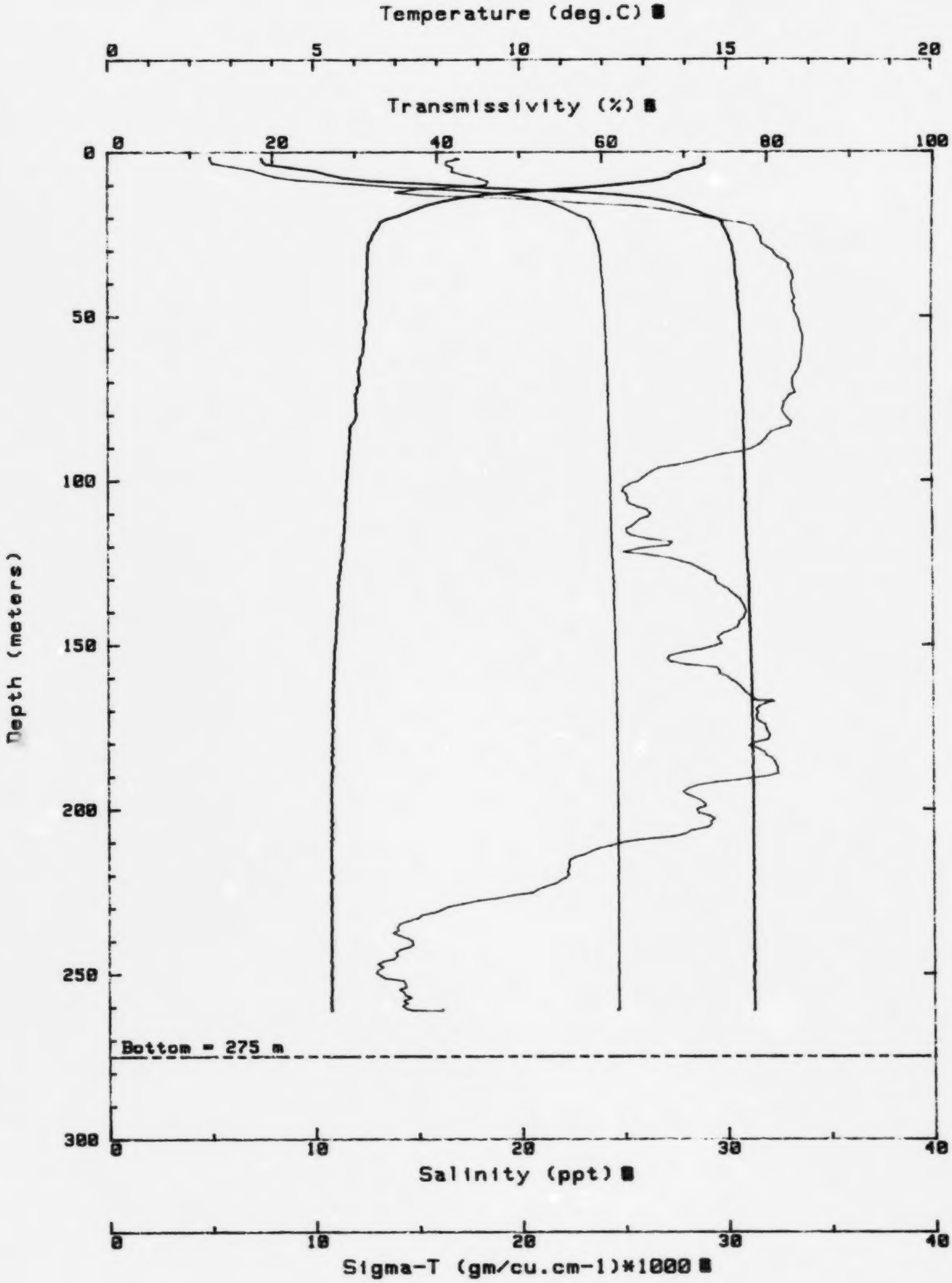
Survey Area : ALICE ARM
Station : Q-20

Date : 82/07/11
Time : 2001 PDT



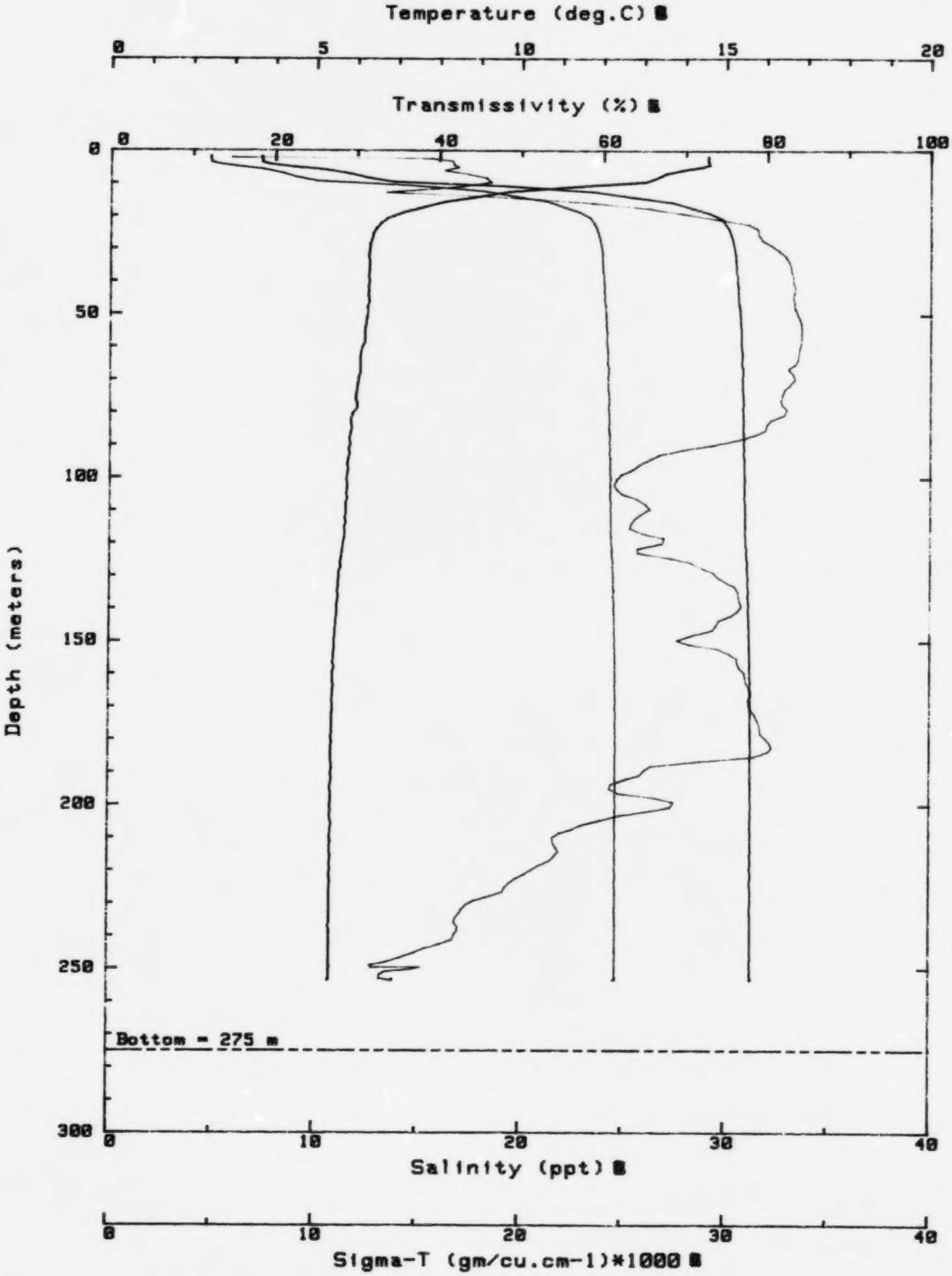
Survey Area : ALICE ARM
Station : Q-20

Date : 82/07/12
Time : 2121 PDT



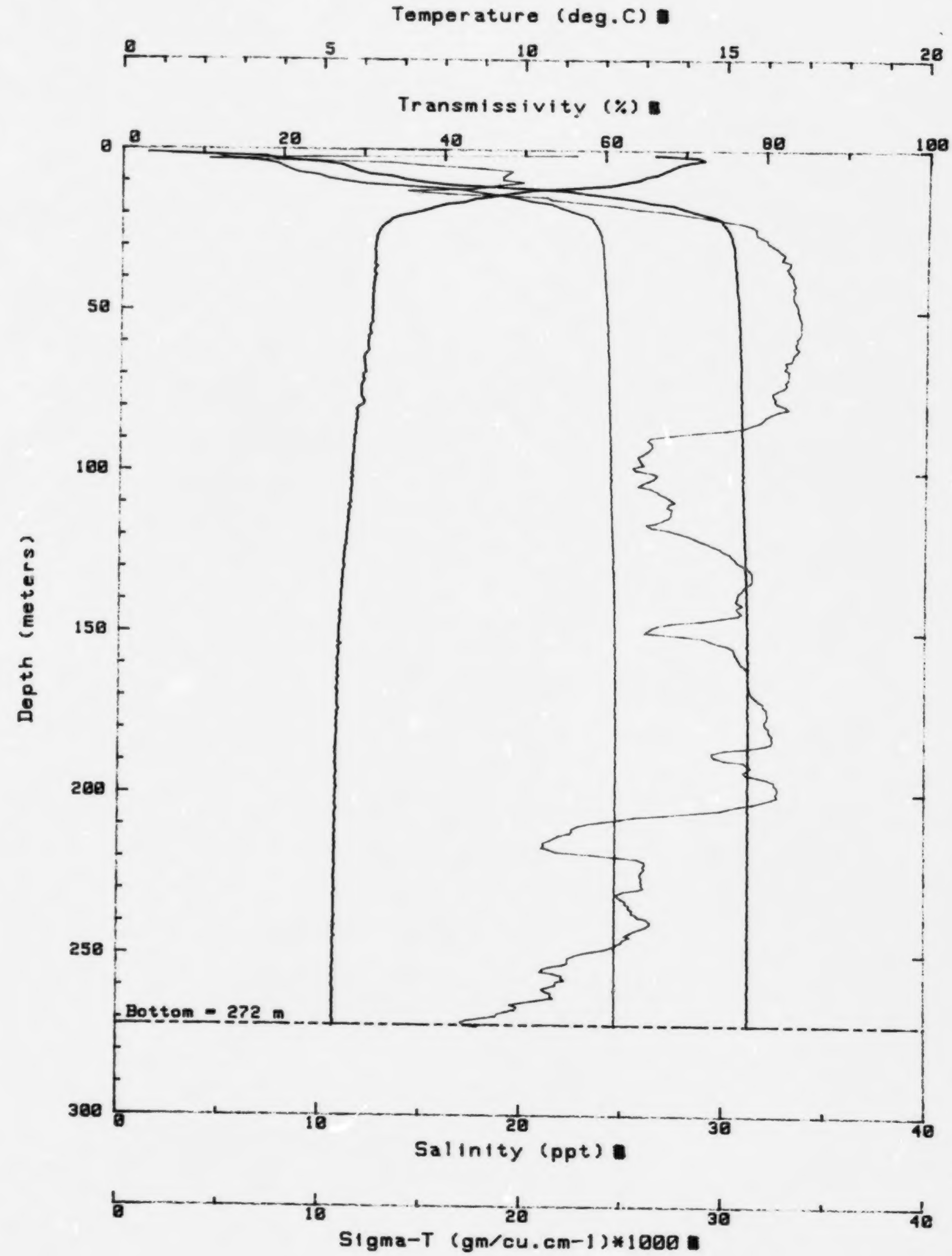
Survey Area : ALICE ARM
Station : Q-20

Date : 82/07/12
Time : 2136 PDT



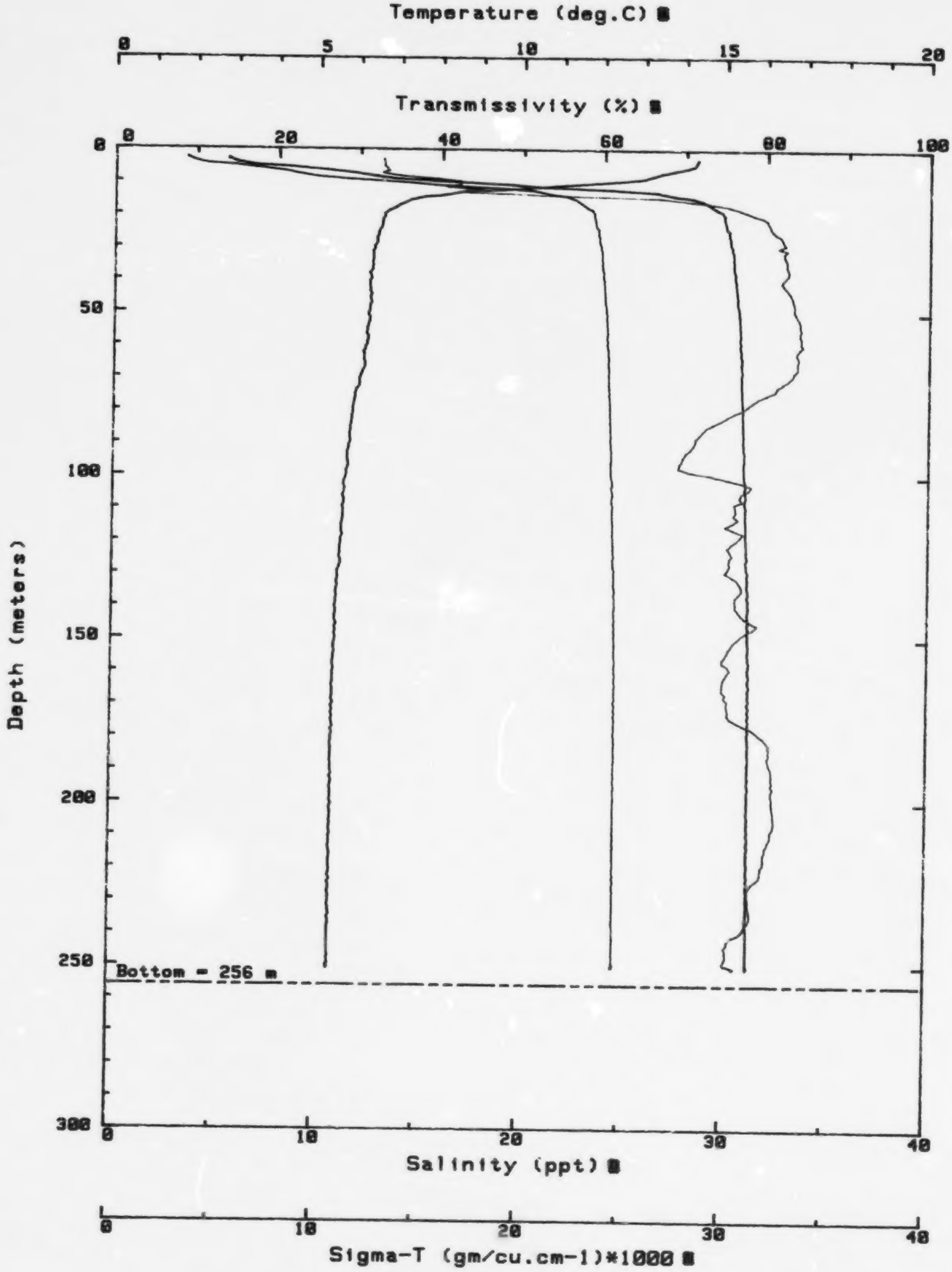
Survey Area : ALICE ARM
Station : Q-20

Date : 82/07/12
Time : 2151 PDT



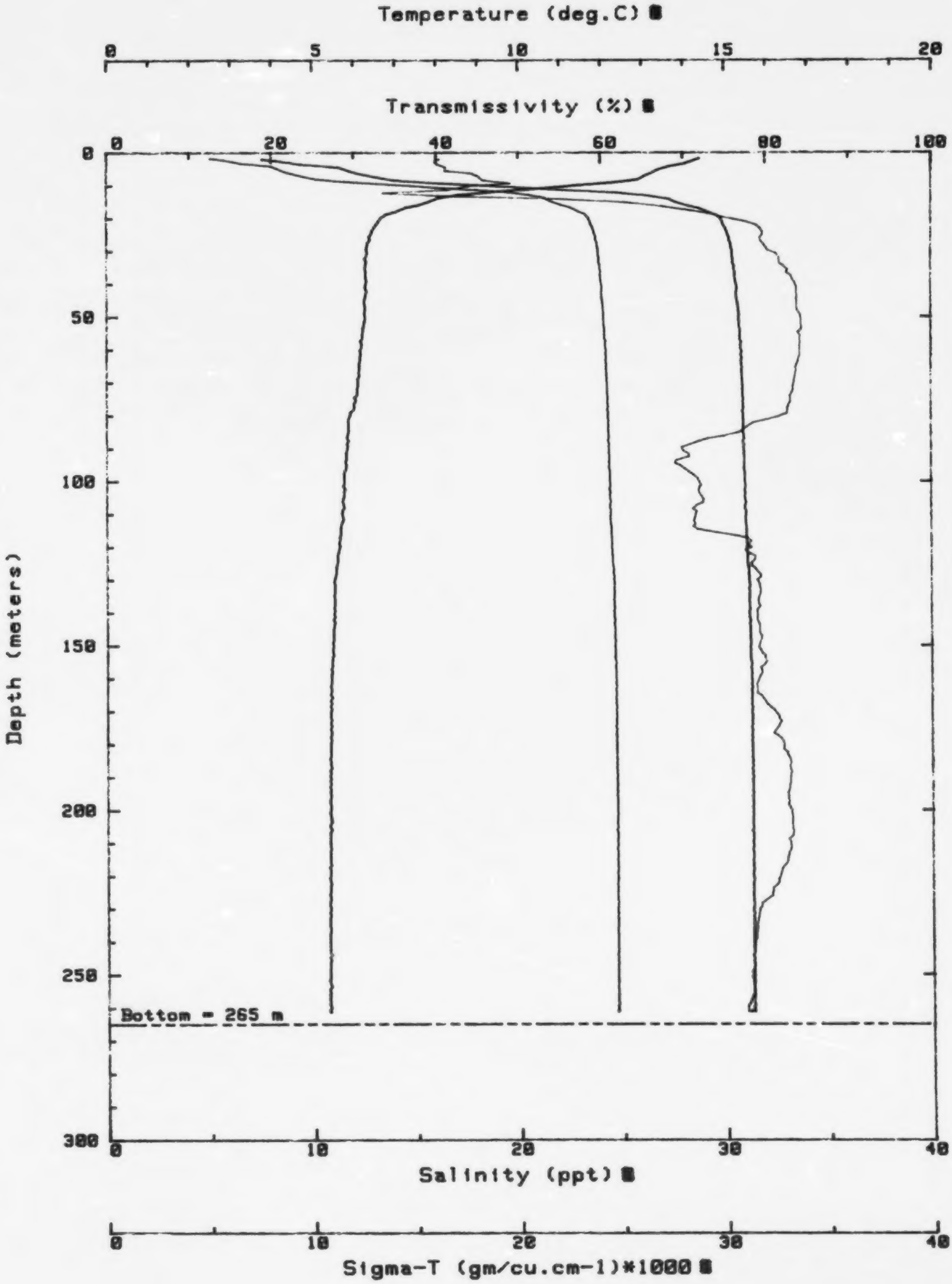
Survey Area : ALICE ARM
Station : S-20

Date : 82/07/10
Time : 2246 PDT



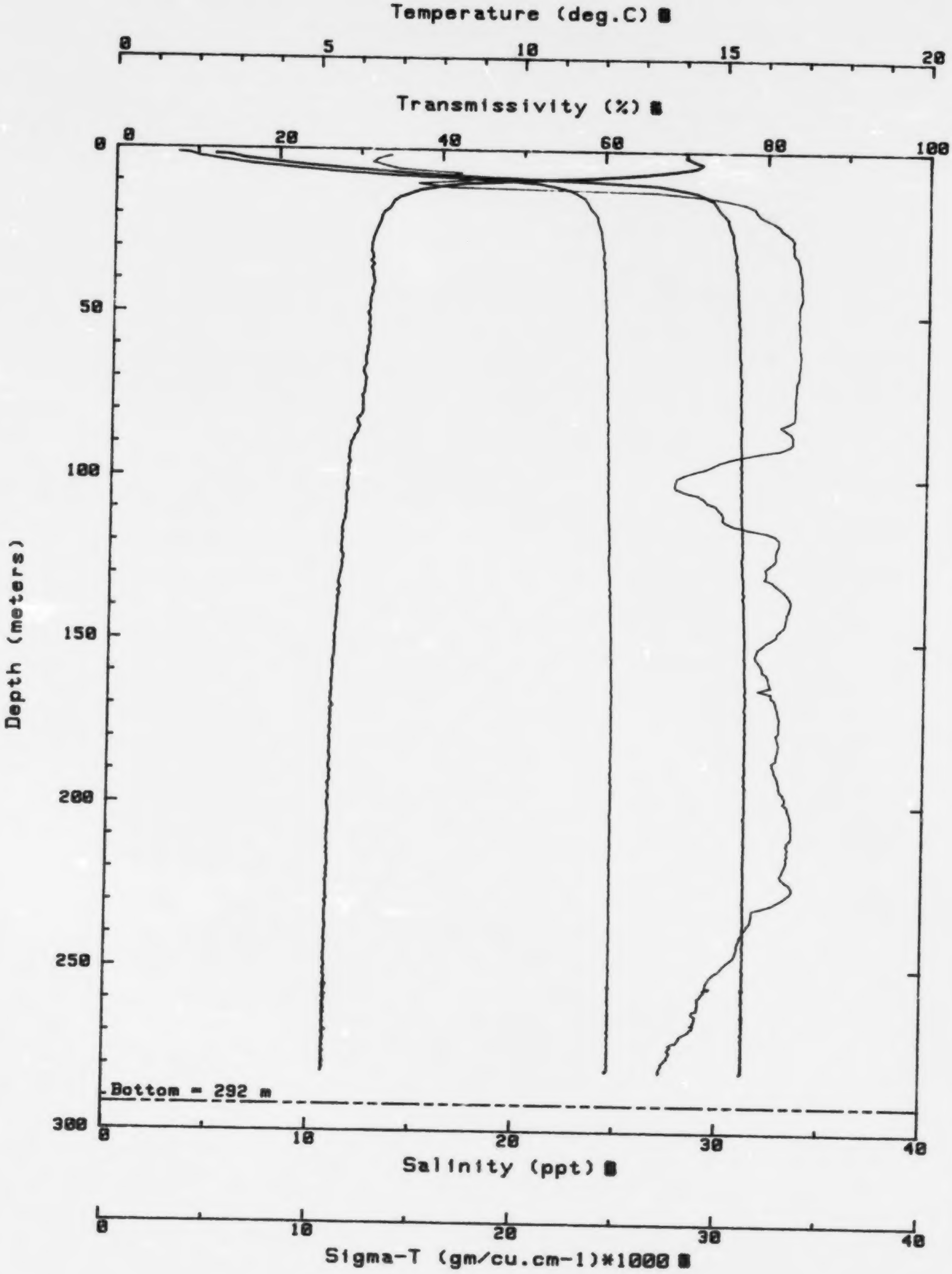
Survey Area : ALICE ARM
Station : S-20

Date : 82/07/12
Time : 2206 PDT



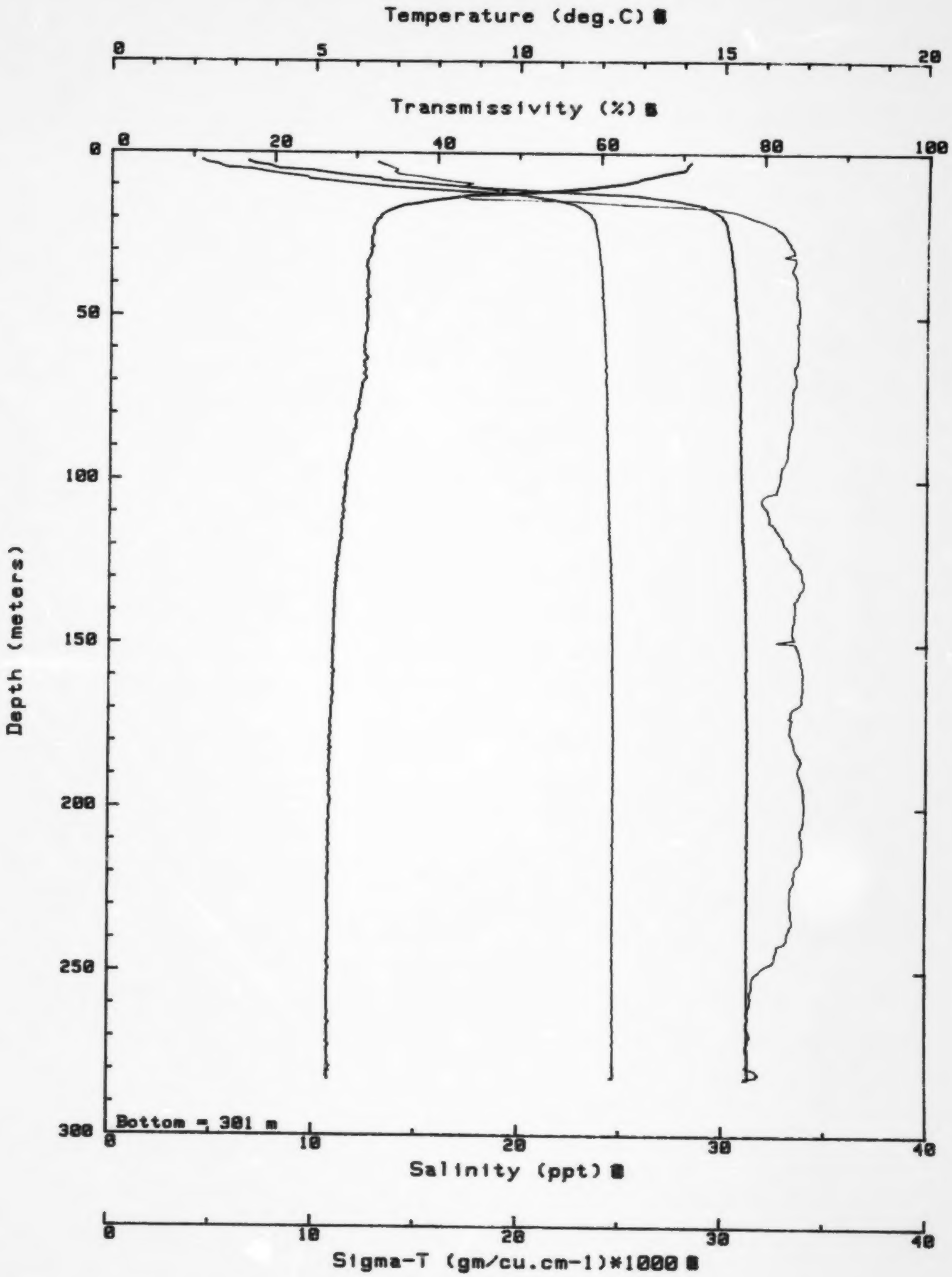
Survey Area : ALICE ARM
Station : Q-26

Date : 82/07/10
Time : 1245 PDT



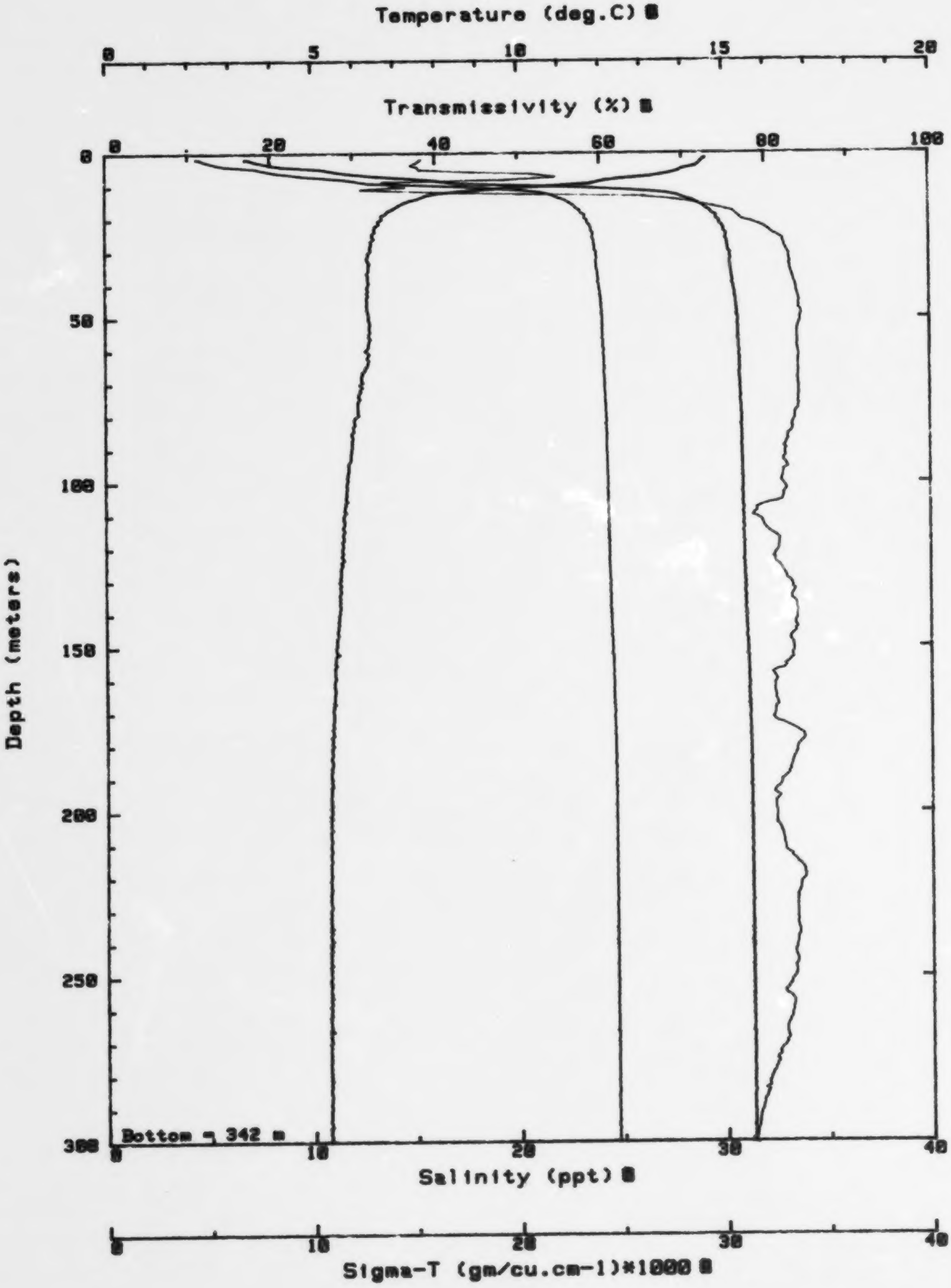
Survey Area : ALICE ARM
Station : R-32

Date : 82/07/10
Time : 2223 PDT



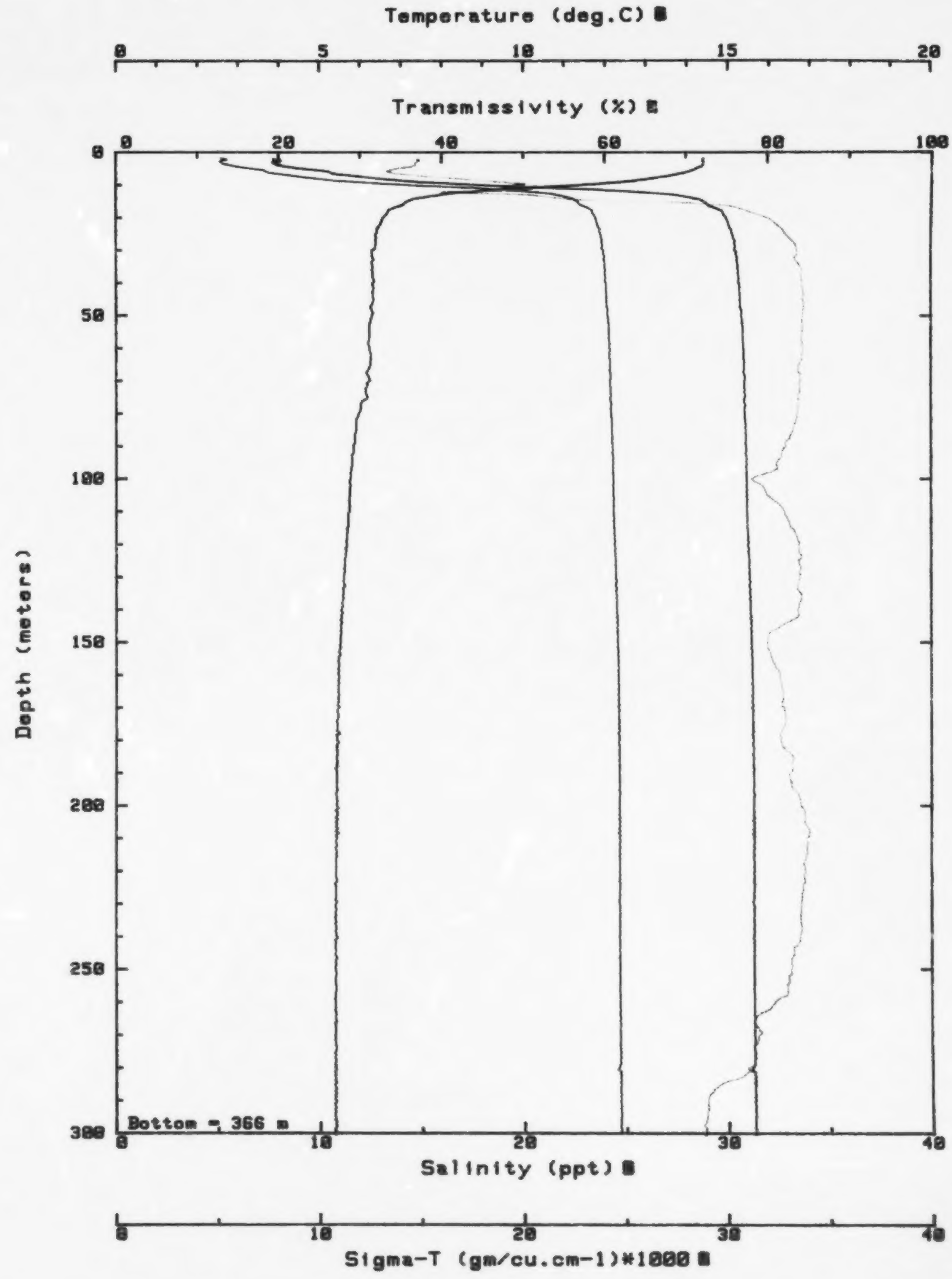
Survey Area : ALICE ARM
Station : R-32

Date : 82/07/12
Time : 1545 PDT



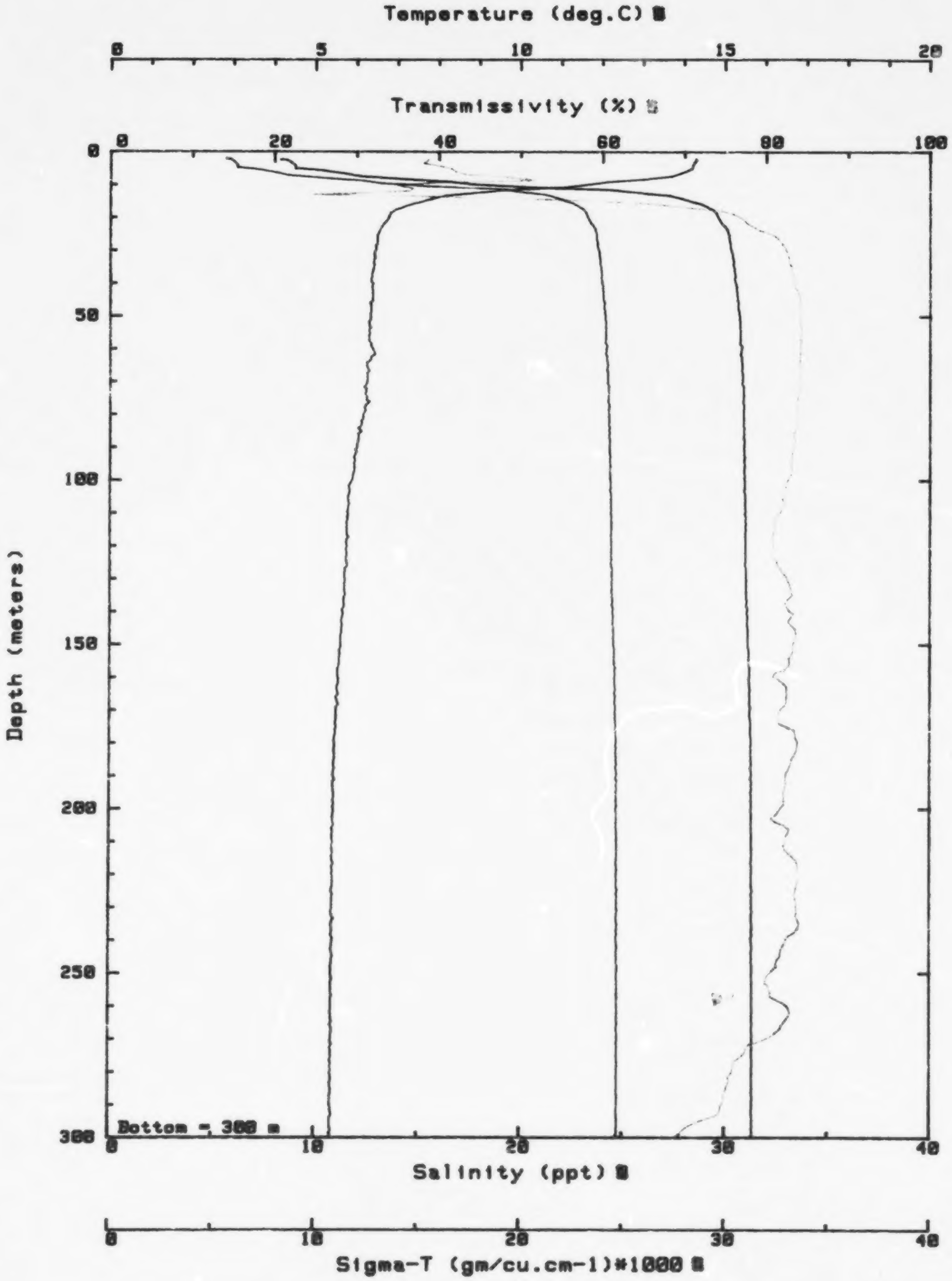
Survey Area : ALICE ARM
Station : O-32

Date : 82/07/10
Time : 2201 PDT



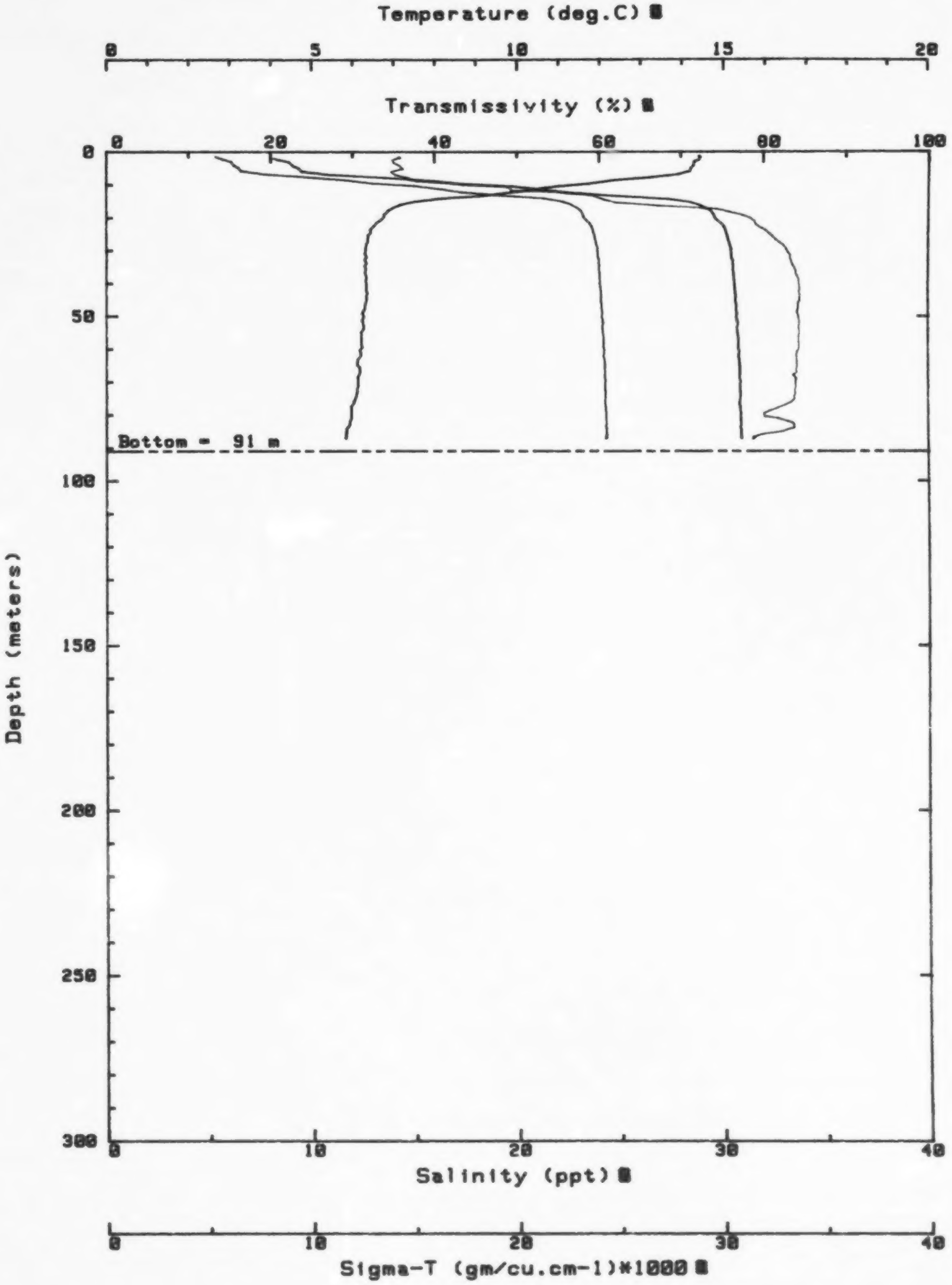
Survey Area : ALICE ARM
Station : O-32

Date : 82/07/12
Time : 1613 PDT



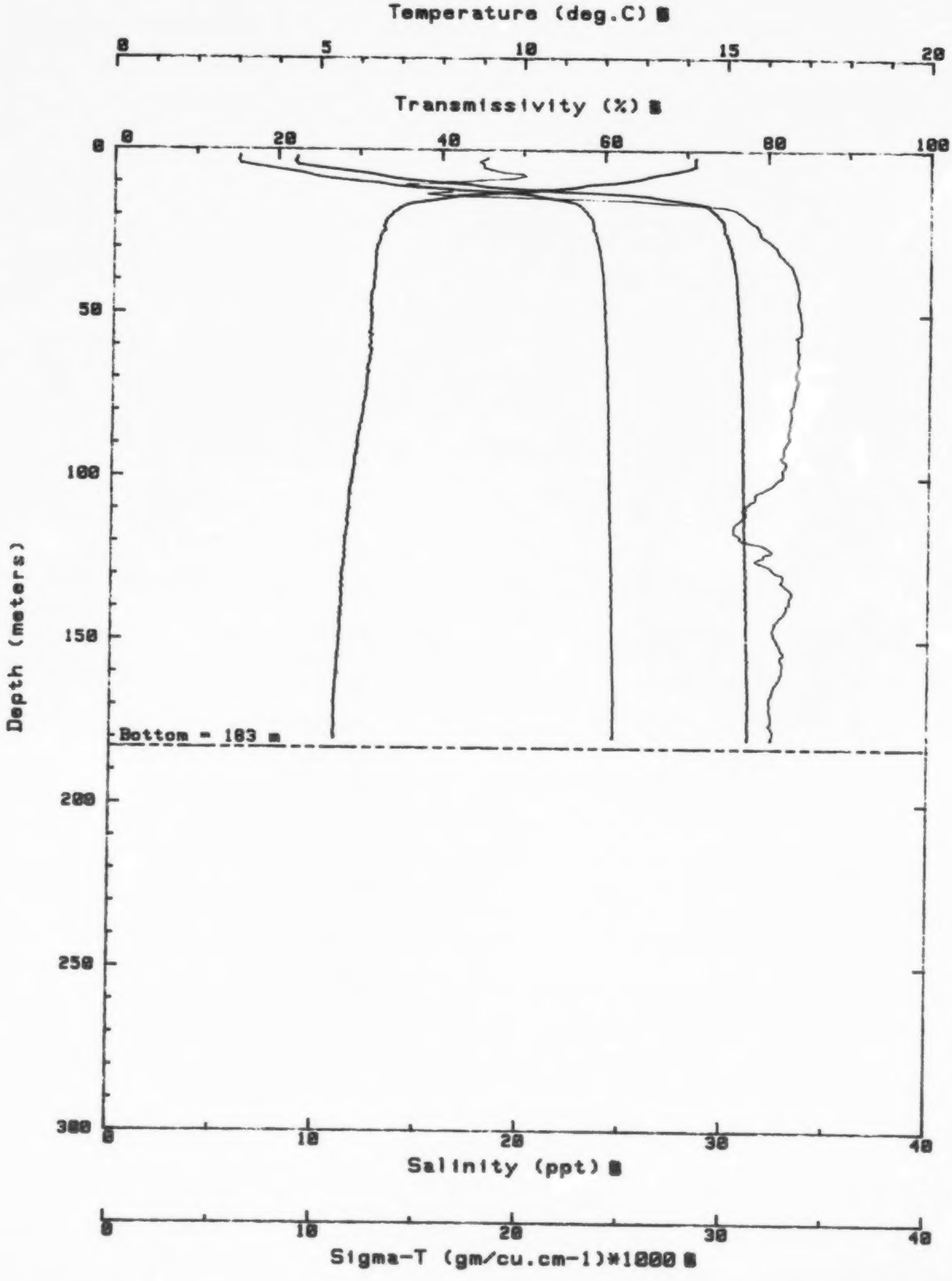
Survey Area : ALICE ARM
Station : L-32

Date : 82/07/10
Time : 2149 PDT



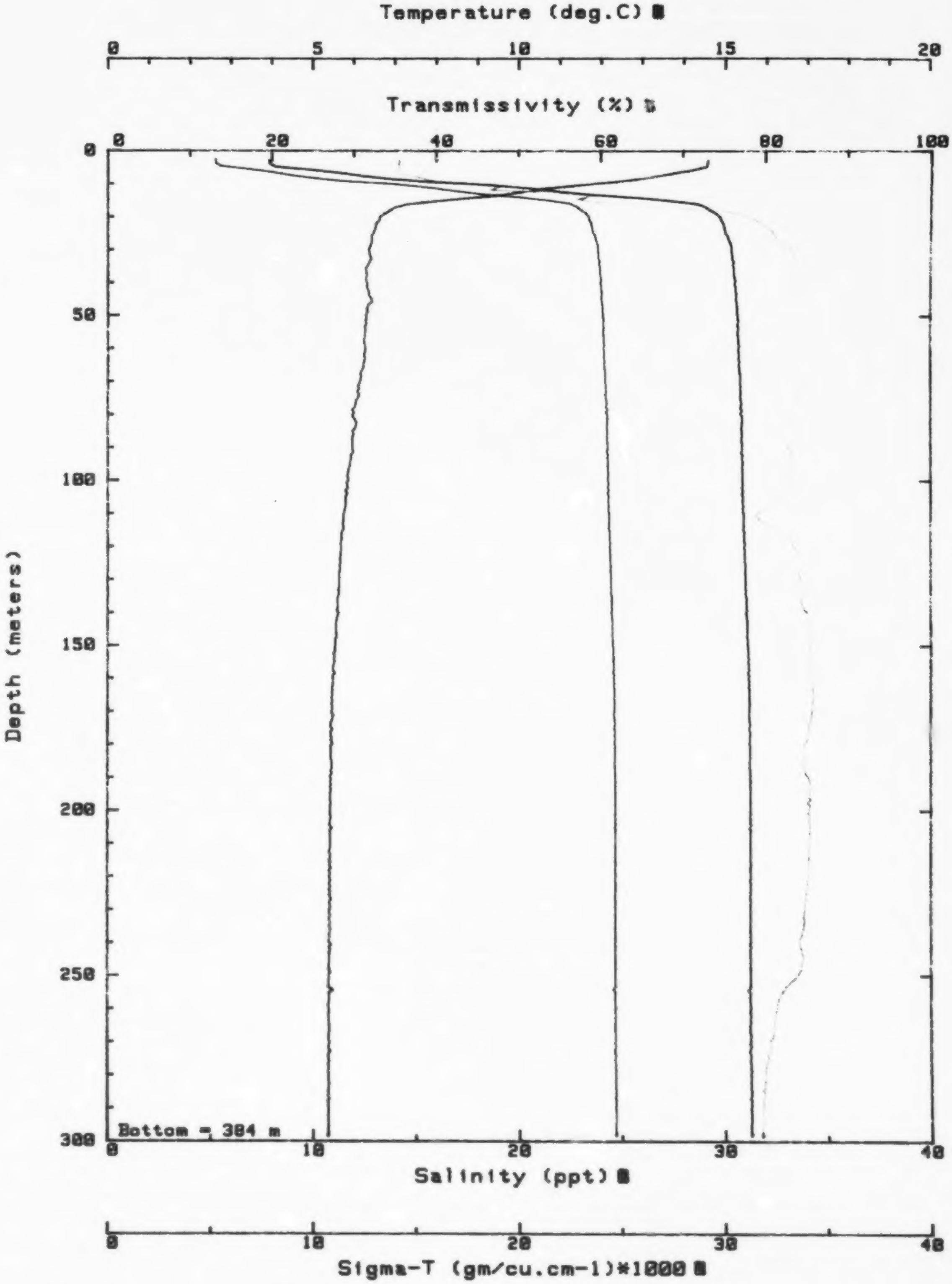
Survey Area : ALICE ARM
Station : L-32

Date : 82/07/12
Time : 1630 PDT



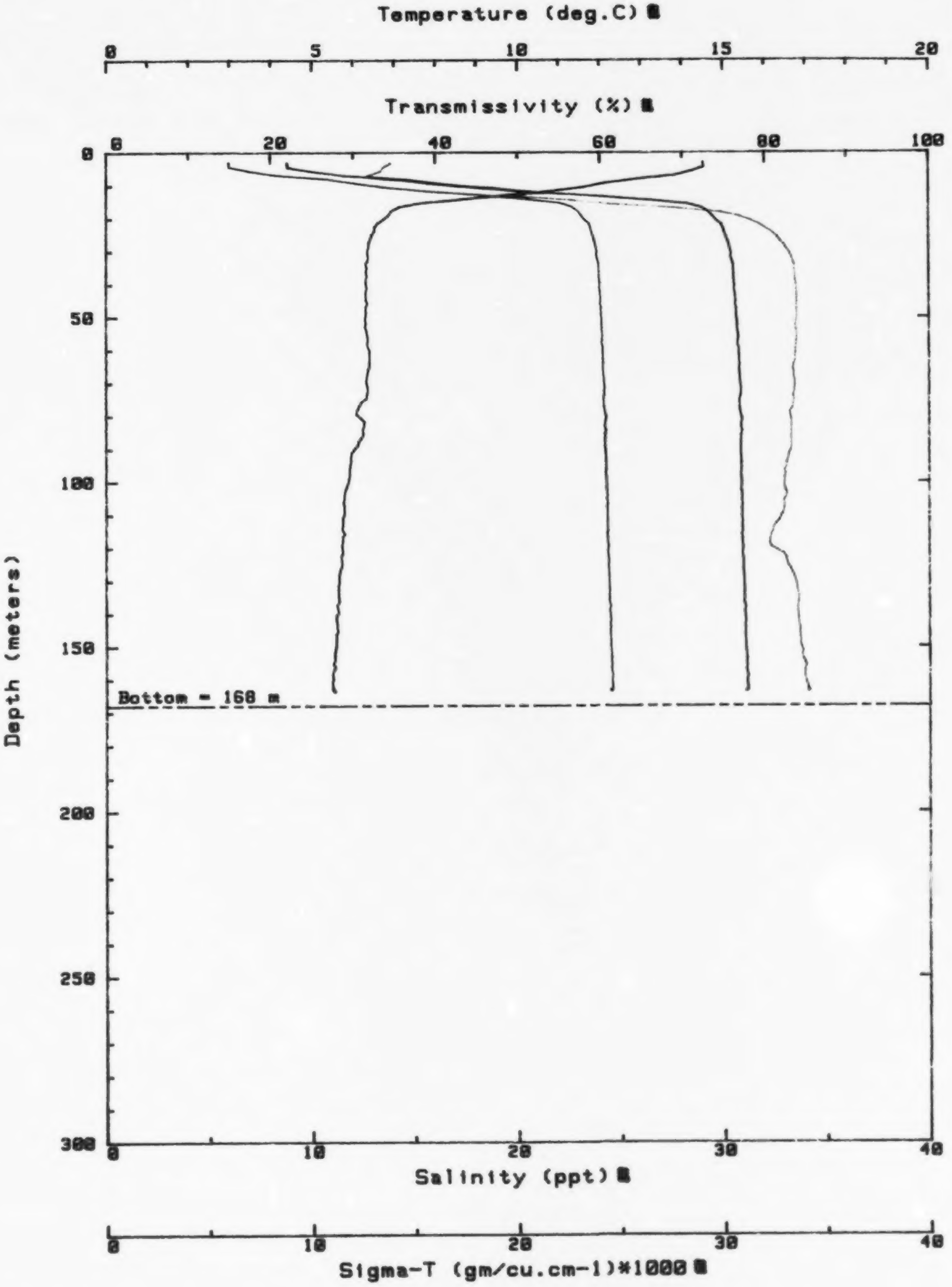
Survey Area : ALICE ARM
Station : M-40

Date : 82/07/10
Time : 2129 PDT



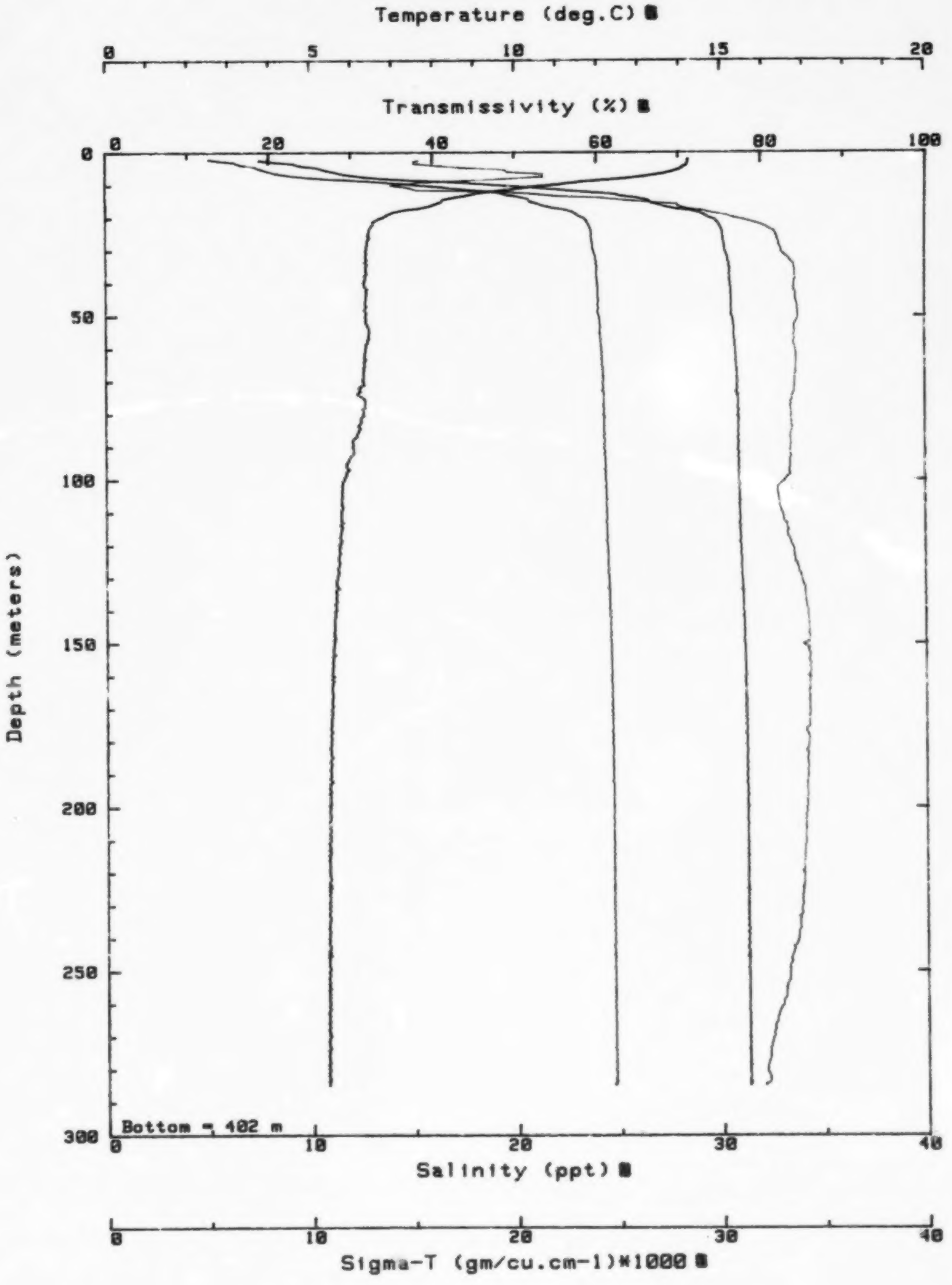
Survey Area : ALICE ARM
Station : K-49

Date : 82/07/10
Time : 2104 PDT



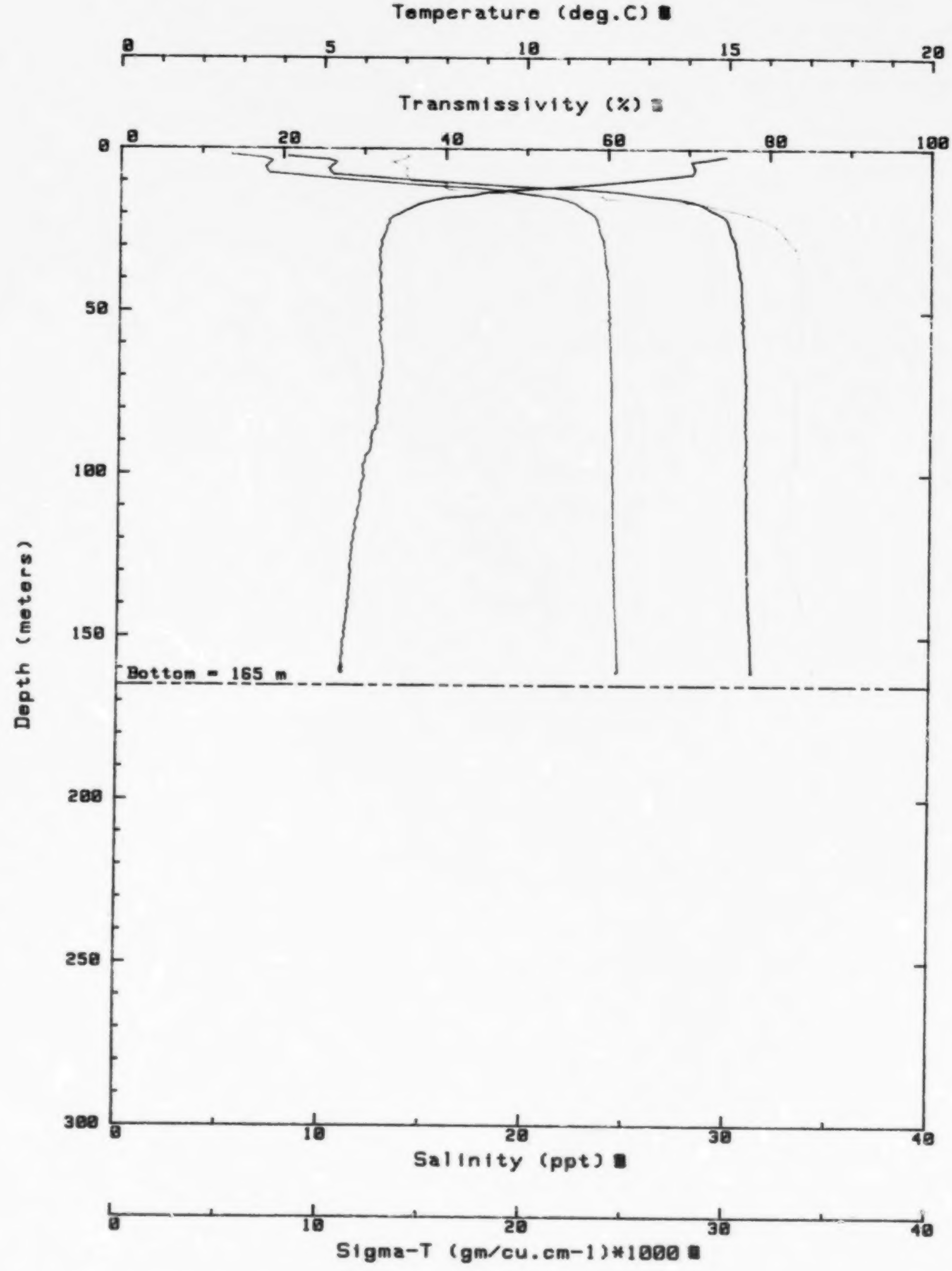
Survey Area : ALICE ARM
Station : K-49

Date : 82/07/12
Time : 1500 PDT



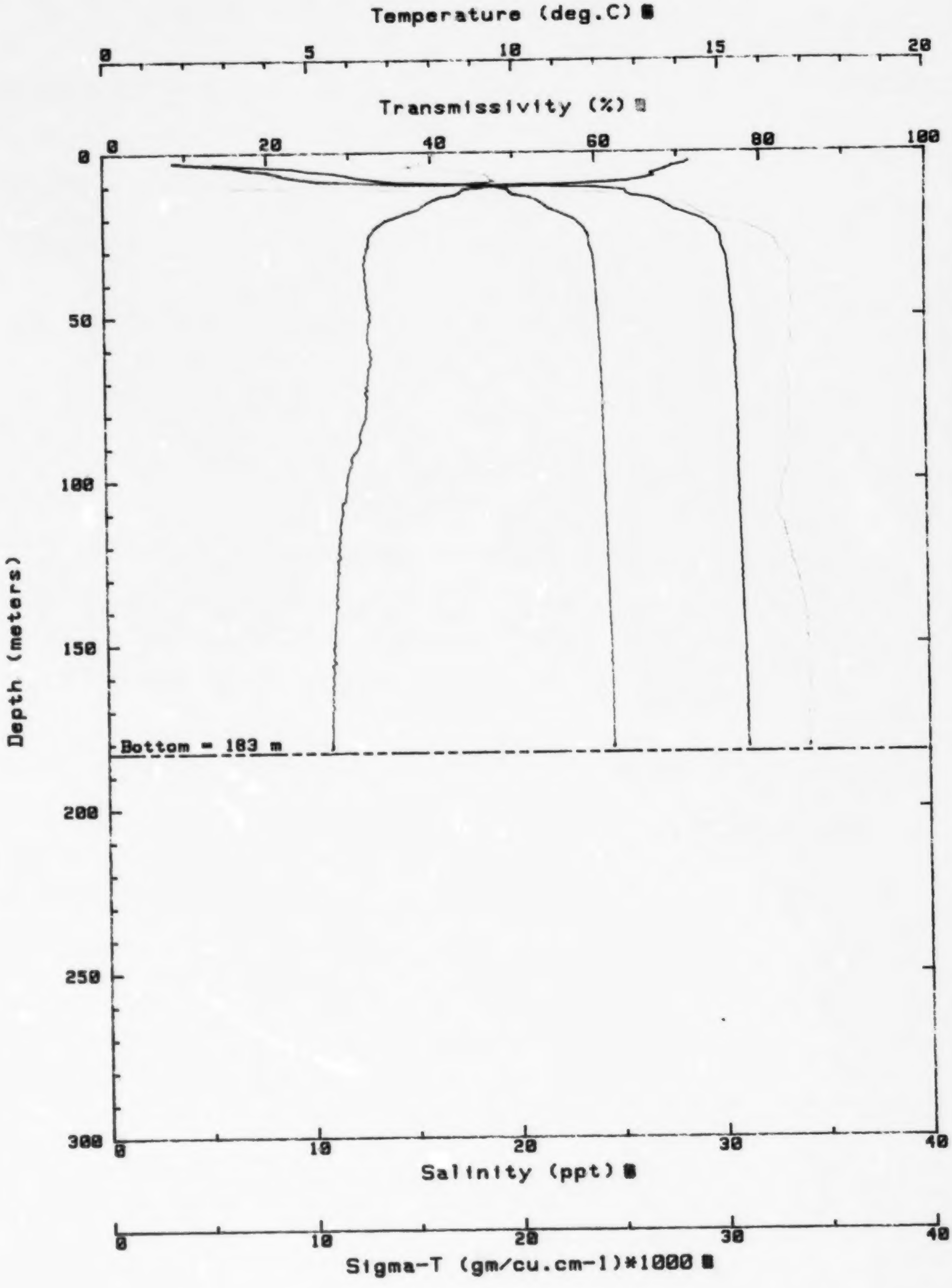
Survey Area : ALICE ARM
Station : O-49

Date : 82/07/10
Time : 2008 PDT



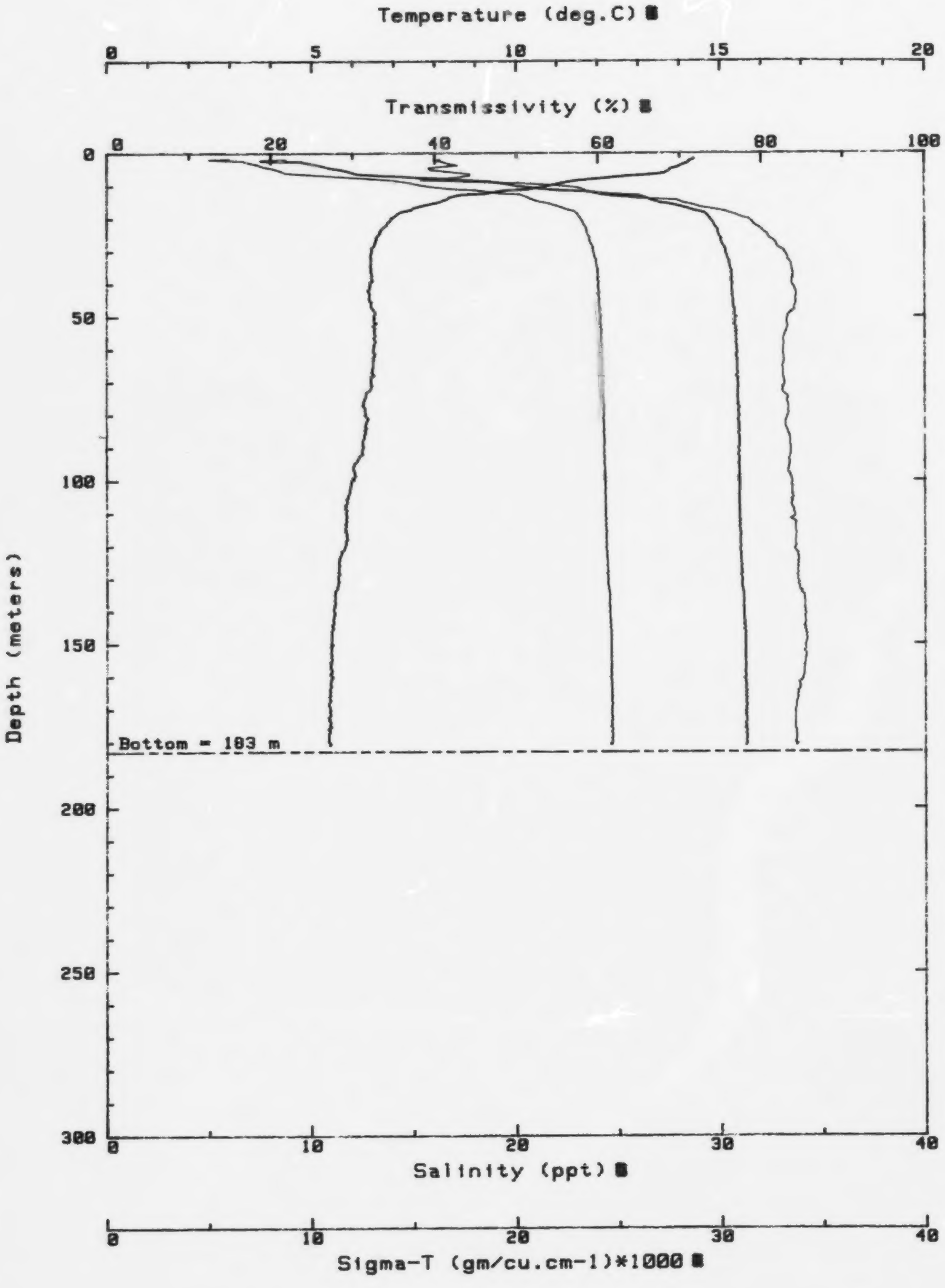
Survey Area : ALICE ARM
Station : O-49

Date : 82/07/12
Time : 1524 PDT



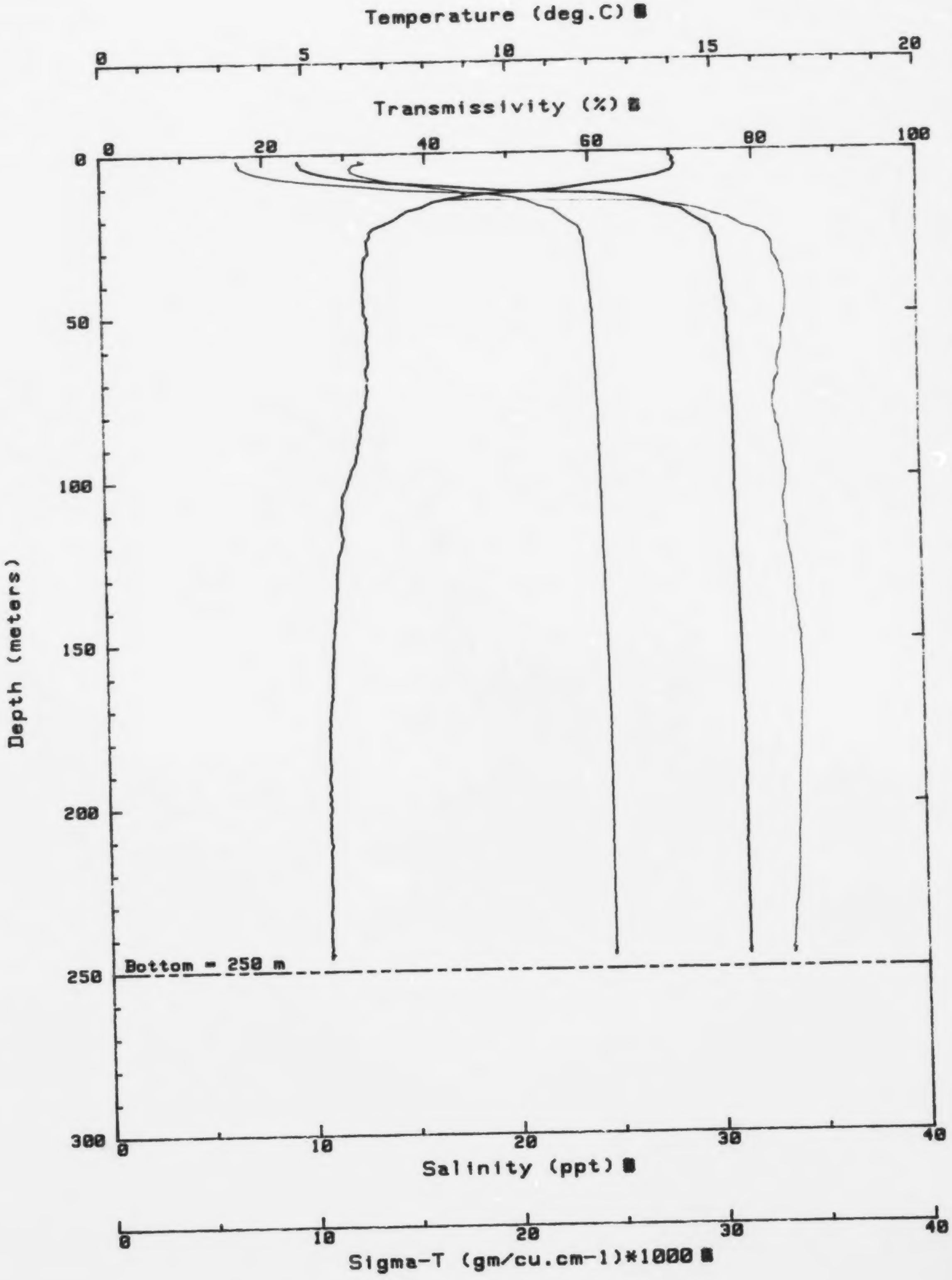
Survey Area : ALICE ARM
Station : T-64

Date : 82/07/12
Time : 1424 PDT



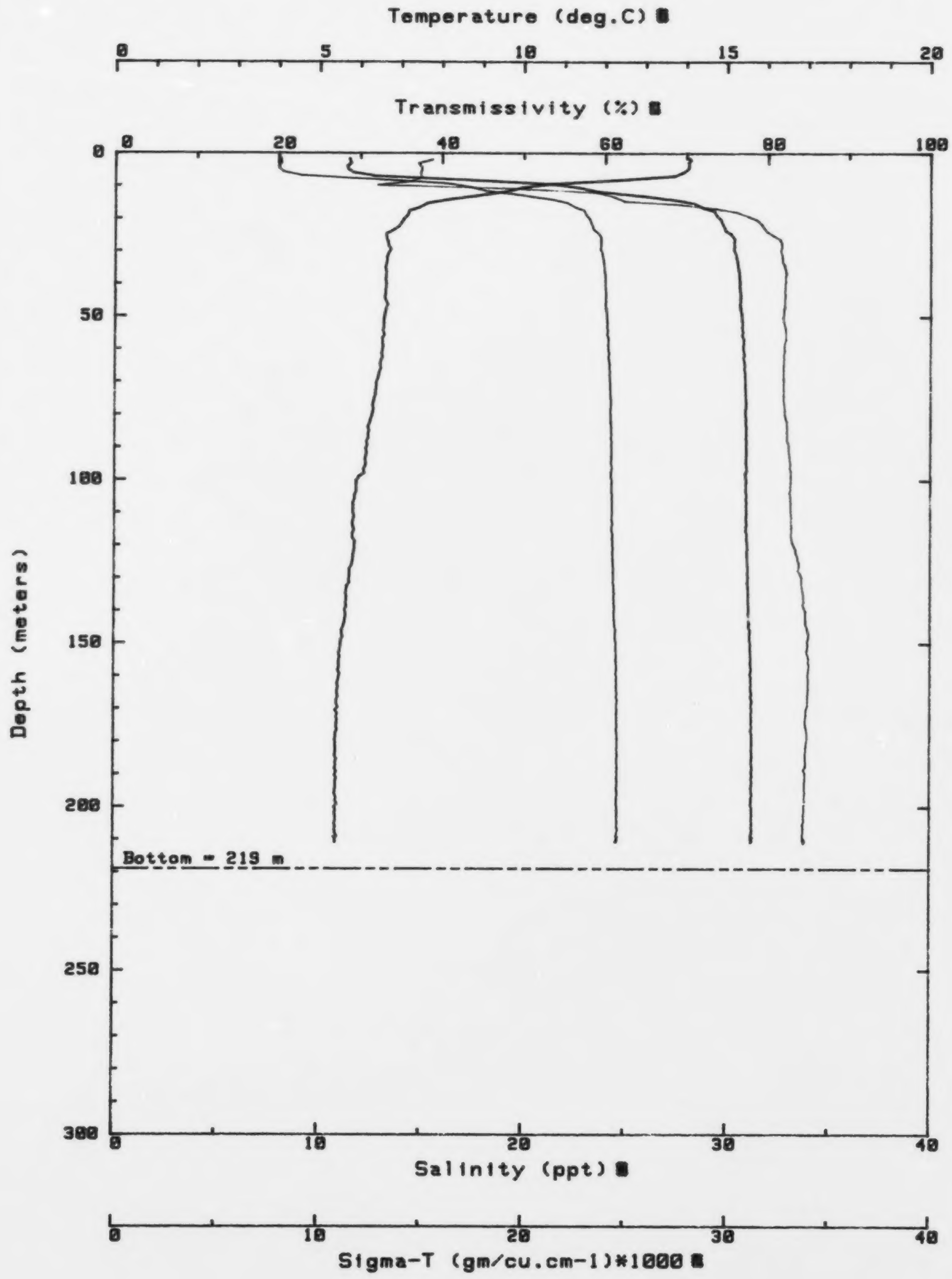
Survey Area : ALICE ARM
Station : T-64

Date : 82/07/10
Time : 1943 PDT



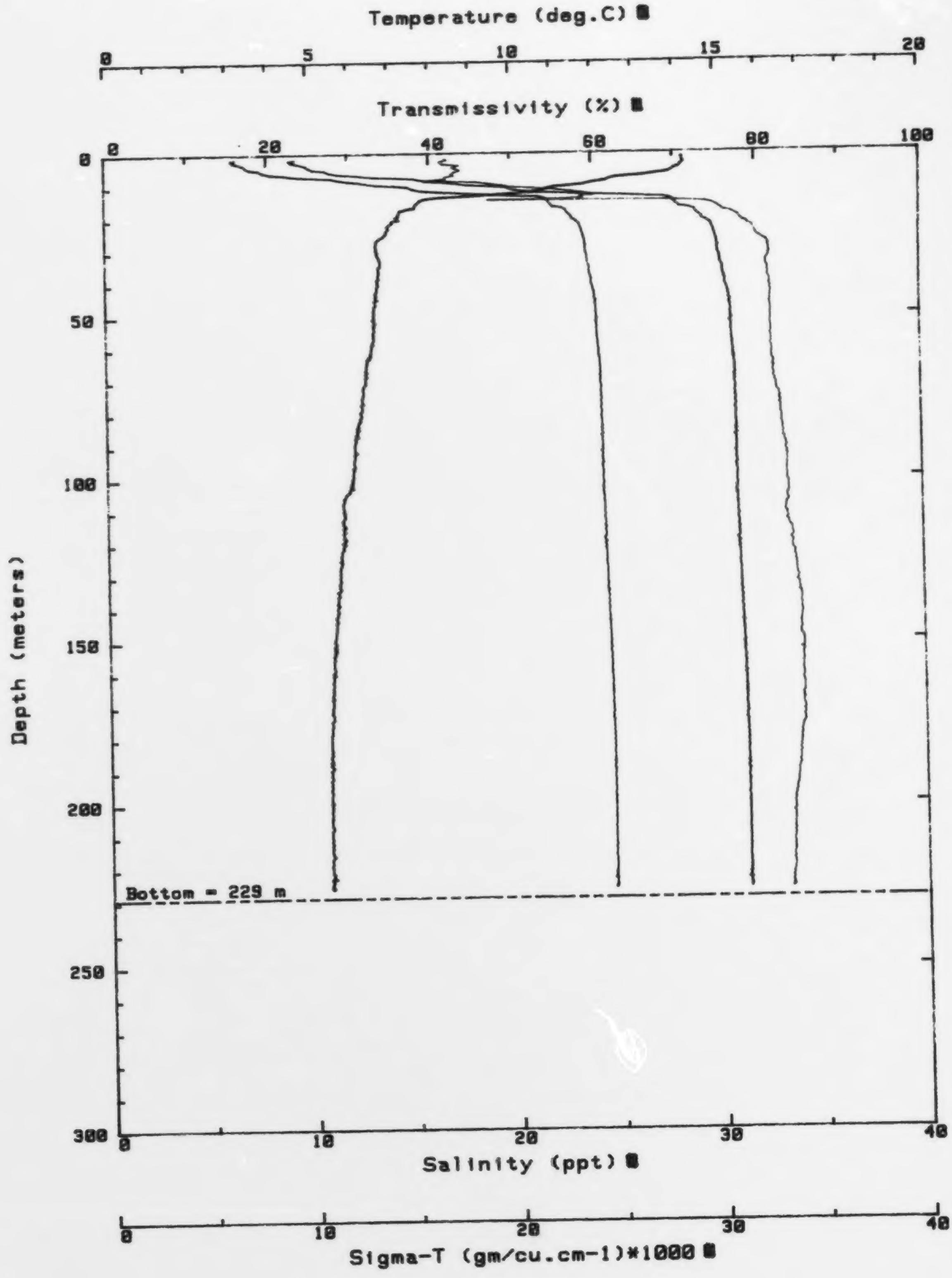
Survey Area : ALICE ARM
Station : B-1-68

Date : 82/07/10
Time : 1921 PDT



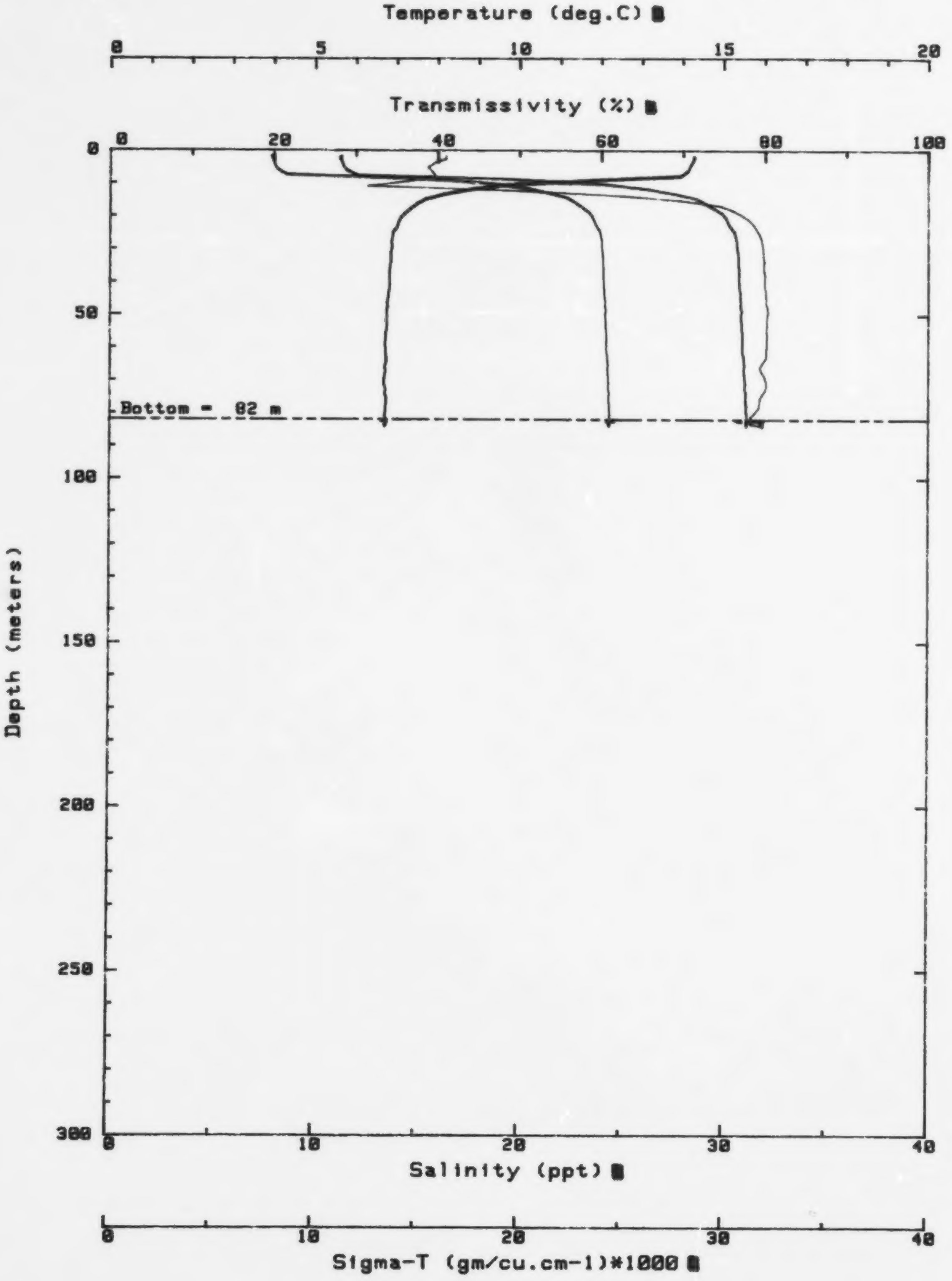
Survey Area : ALICE ARM
Station : B-1-68

Date : 82/07/12
Time : 1405 PDT



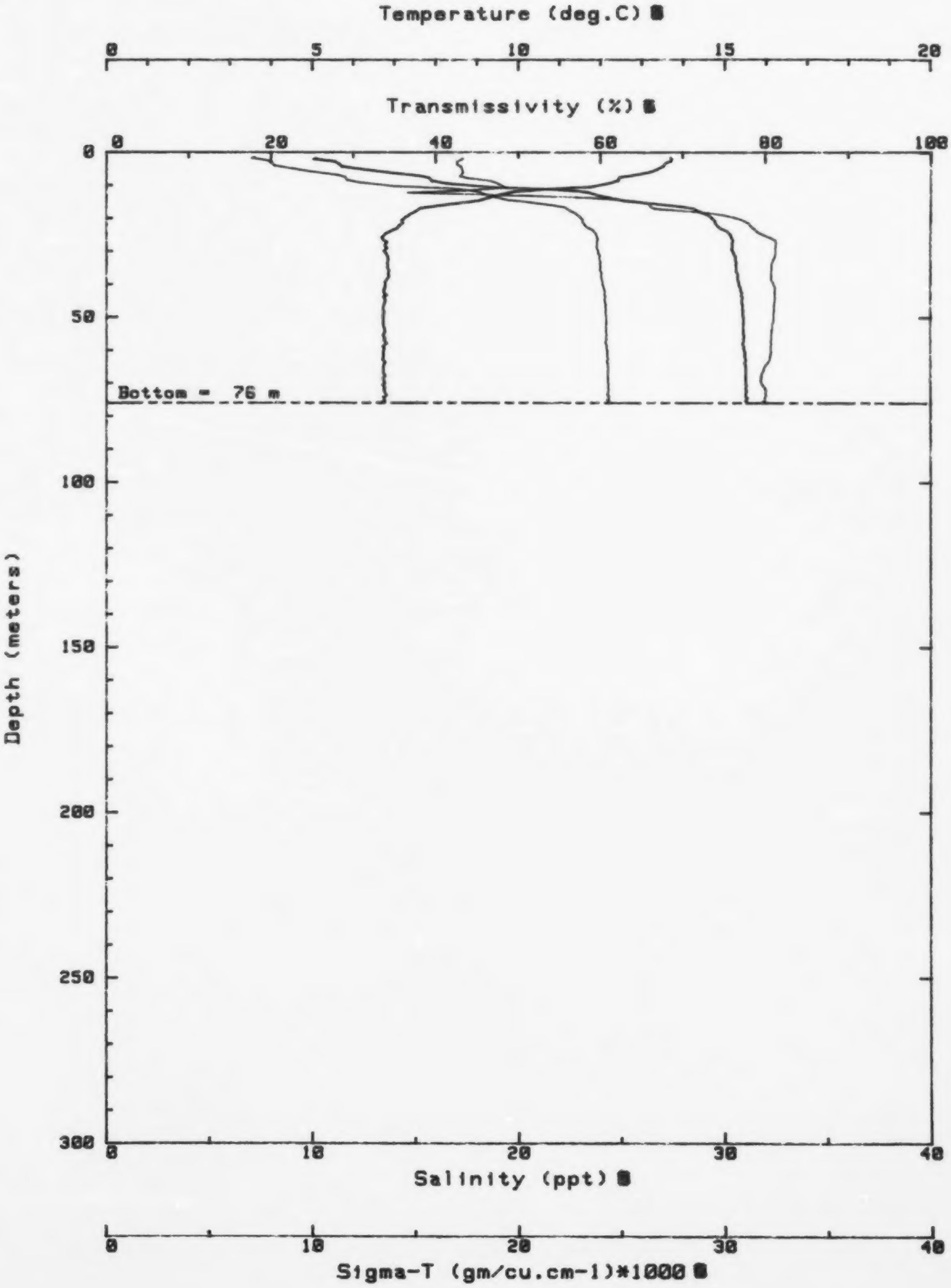
Survey Area : ALICE ARM
Station : K-1-70

Date : 82/07/10
Time : 1836 PDT



Survey Area : ALICE ARM
Station : K-1-70

Date : 82/07/12
Time : 1351 PDT

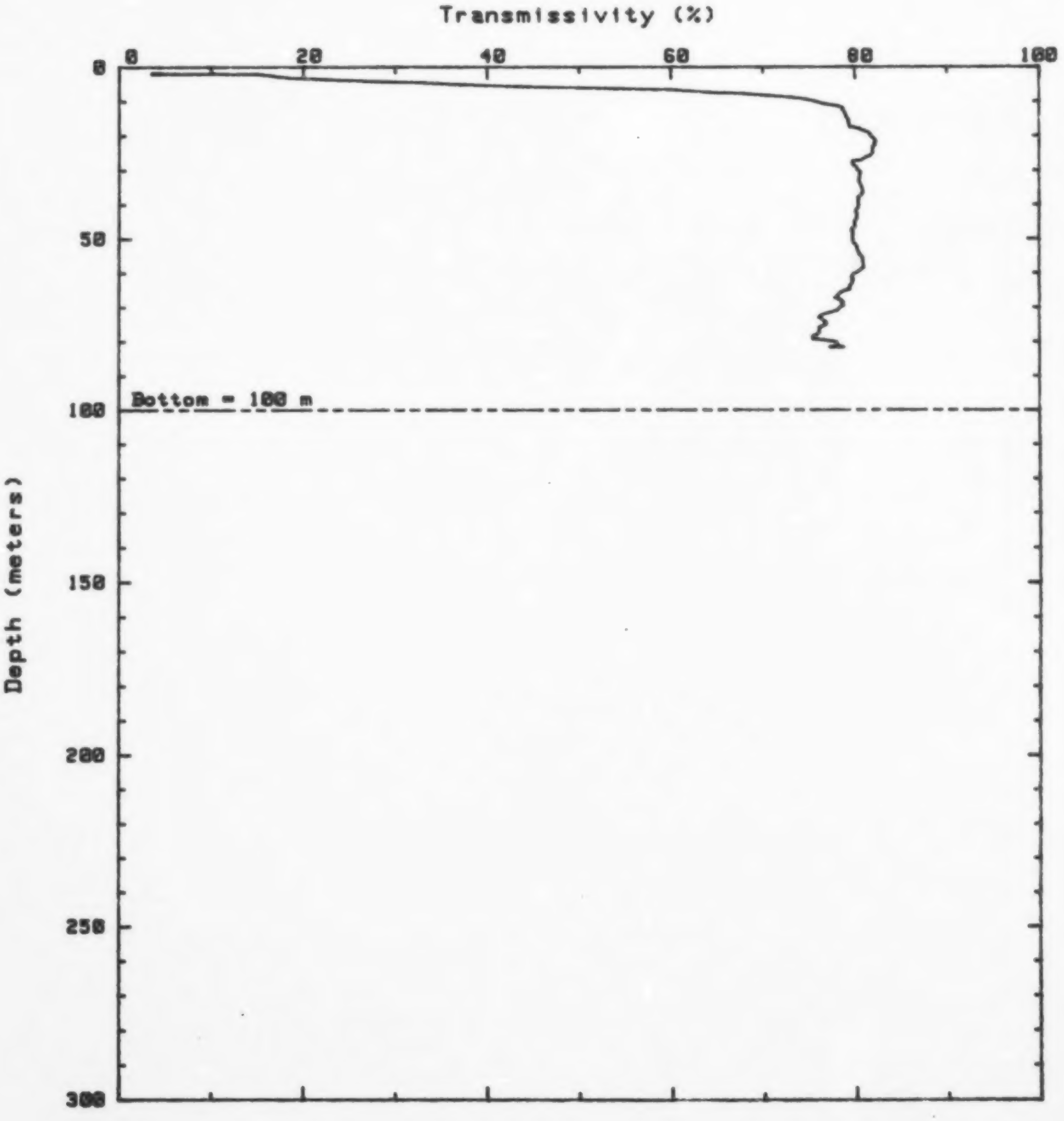


APPENDIX II

TRANSMITTANCE PROFILES - OCTOBER 1982

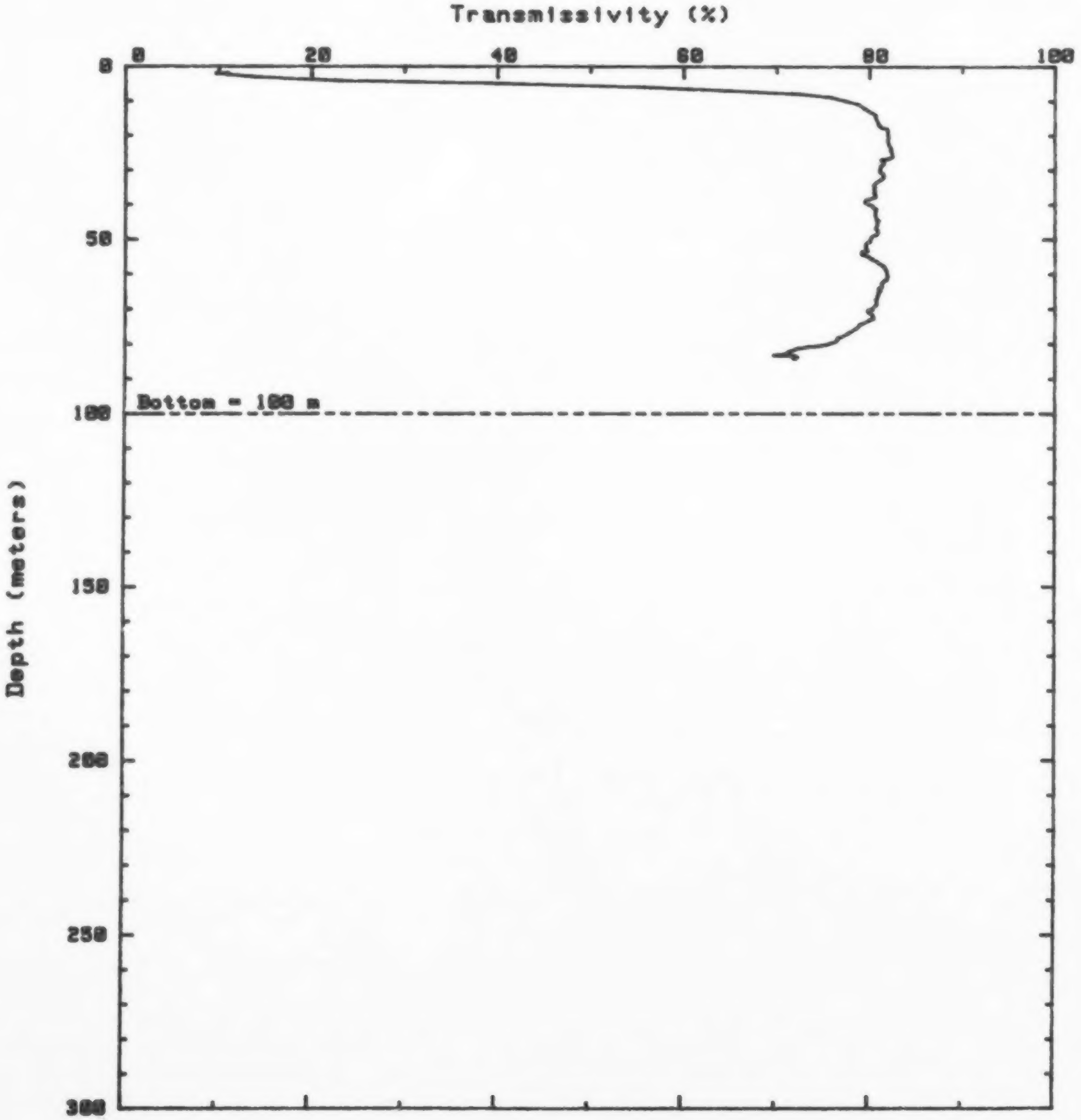
Survey Area : ALICE ARM
Station : G5

Date : 82/10/01
Time : 1557 PDT



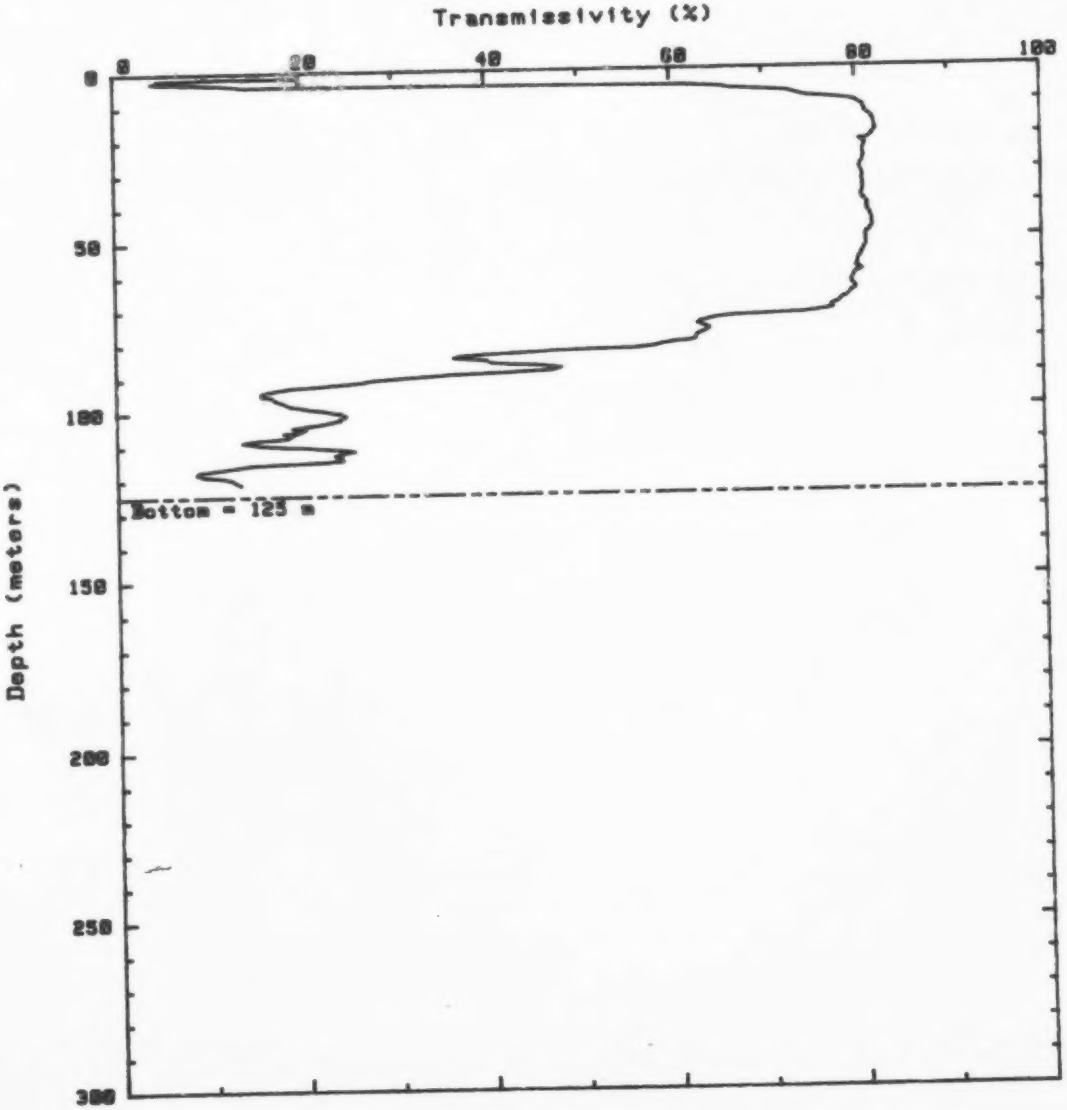
Survey Area : ALICE ARM
Station : G5

Date : 82/10/01
Time : 1644 PDT



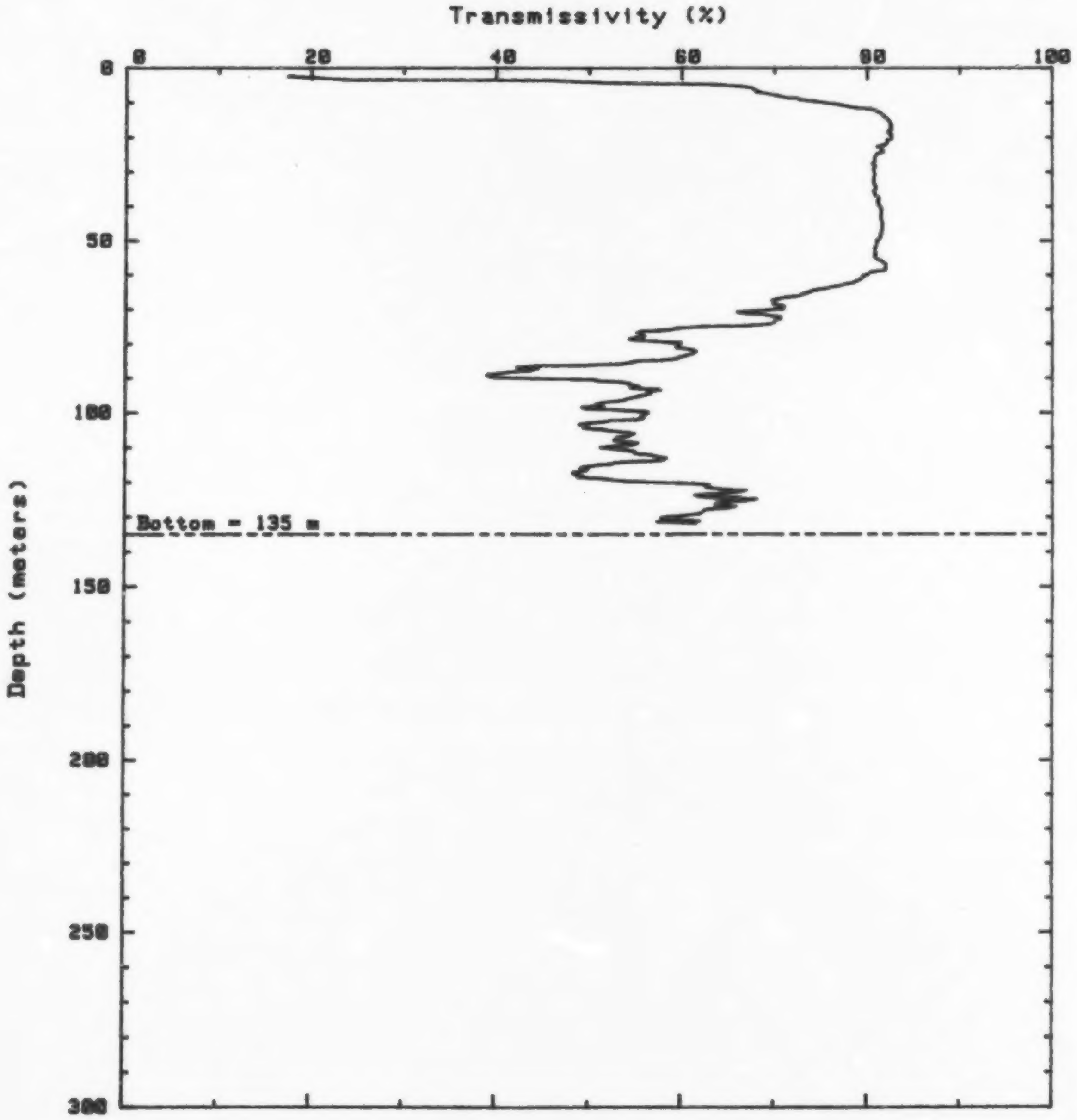
Survey Area : ALICE ARM
Station : N8

Date : 82/10/01
Time : 1832 PDT



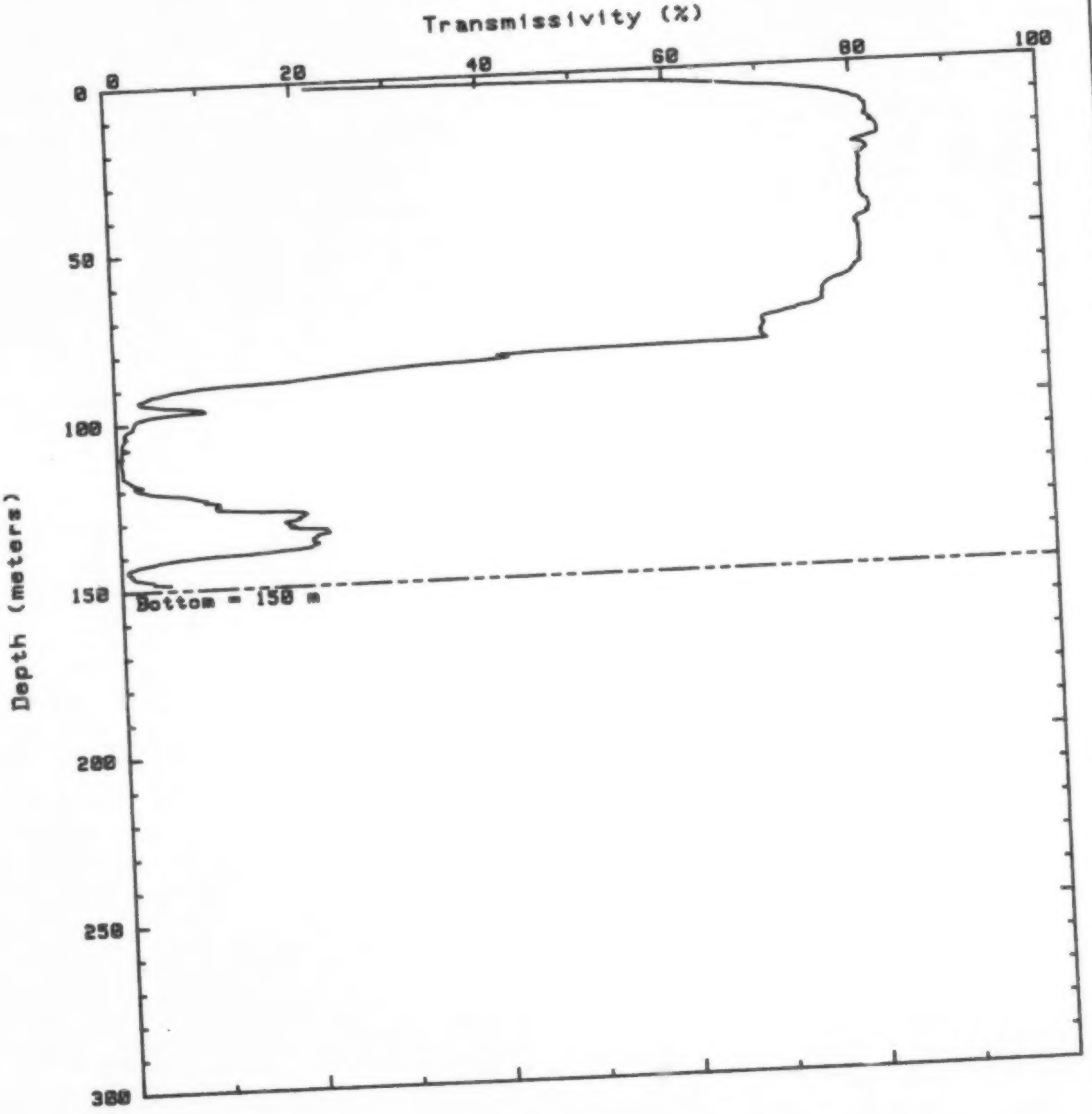
Survey Area : ALICE ARM
Station : M9

Date : 82/10/01
Time : 1801 PDT



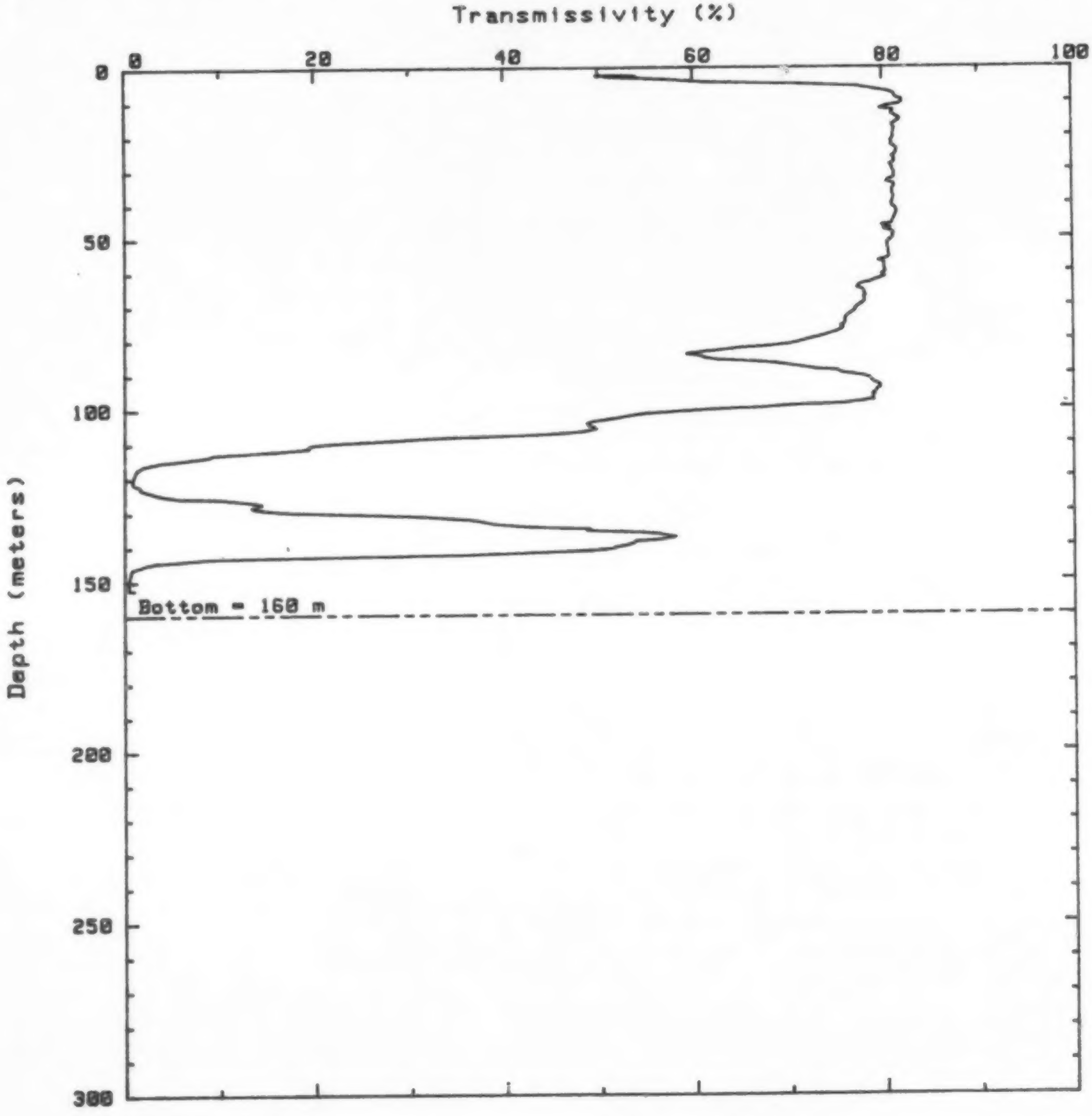
Survey Area : ALICE ARM
Station : L10

Date : 82/10/01
Time : 1717 PDT



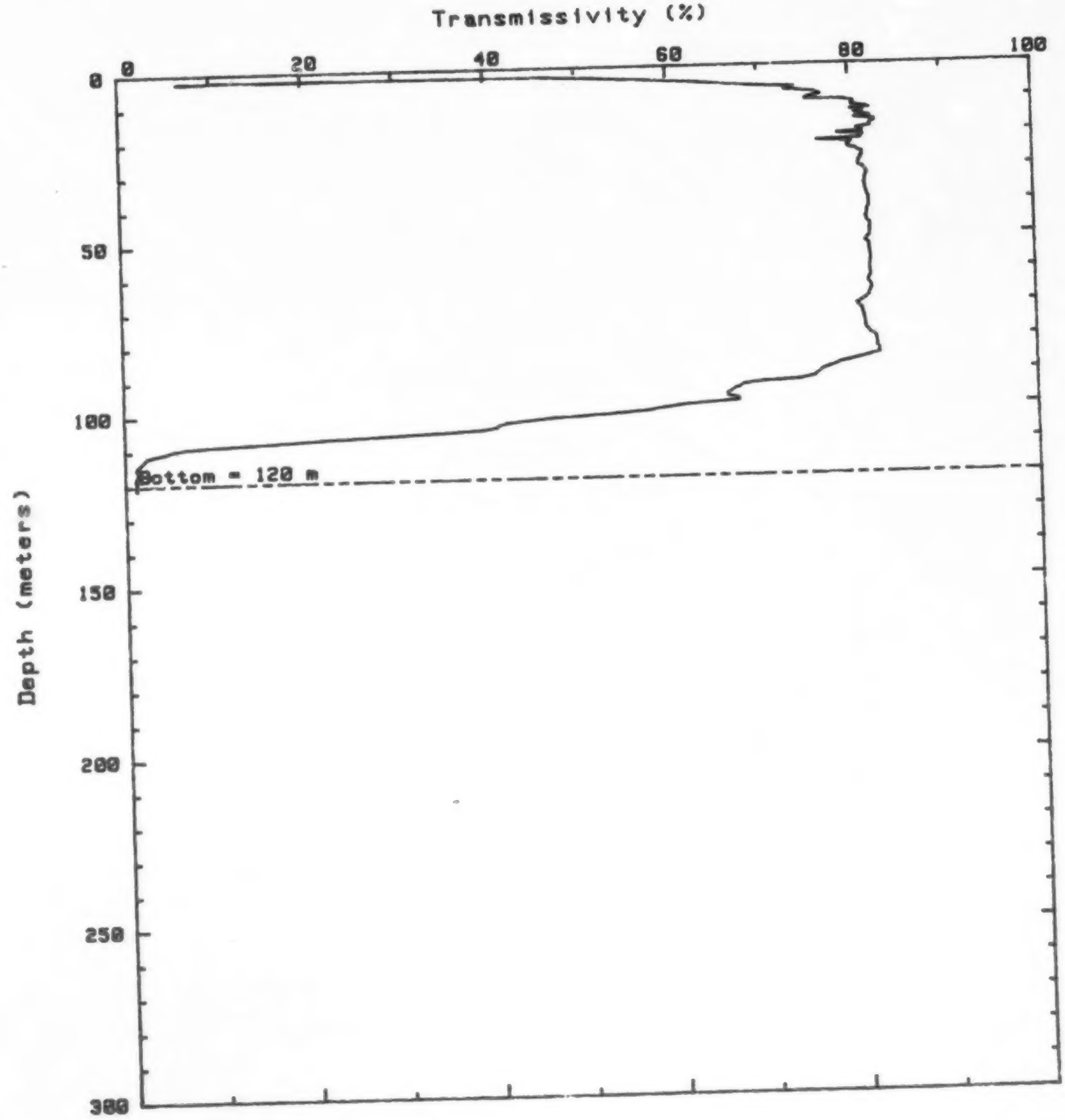
Survey Area : ALICE ARM
Station : L10

Date : 82/10/01
Time : 2153 PDT



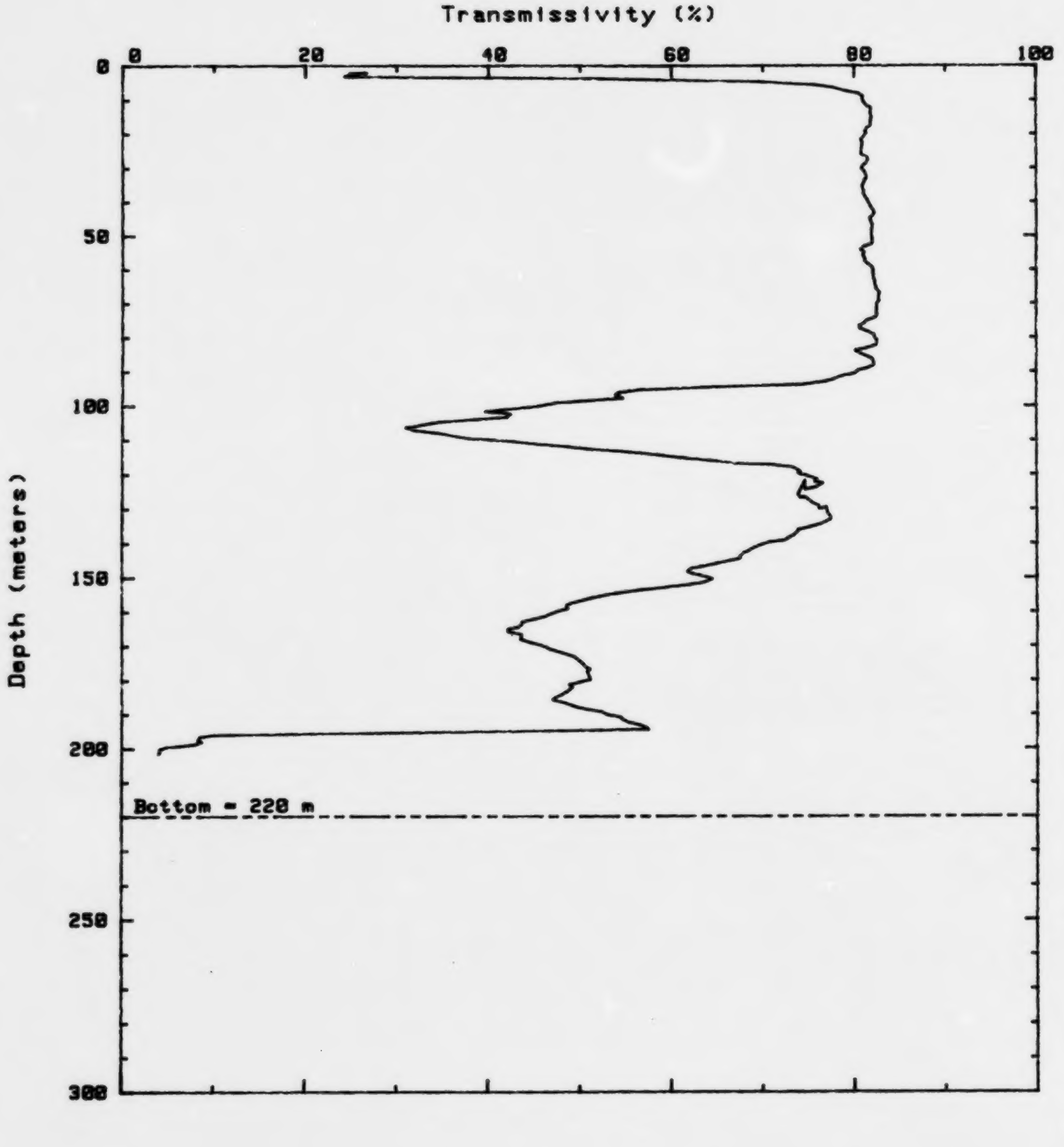
Survey Area : ALICE ARM
Station : N14

Date : 82/10/01
Time : 1913 PDT



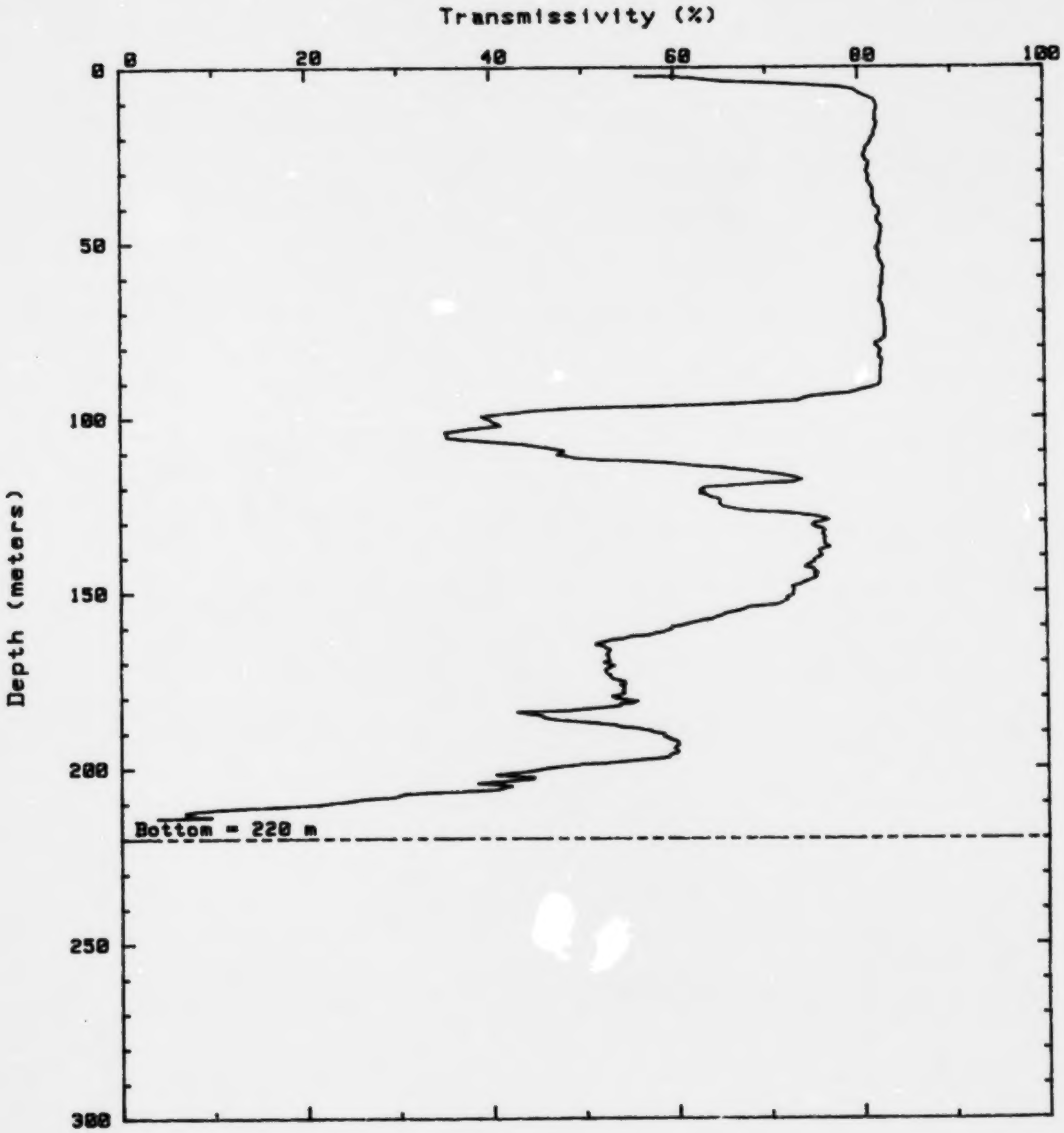
Survey Area : ALICE ARM
Station : 013

Date : 82/10/01
Time : 2000 PDT



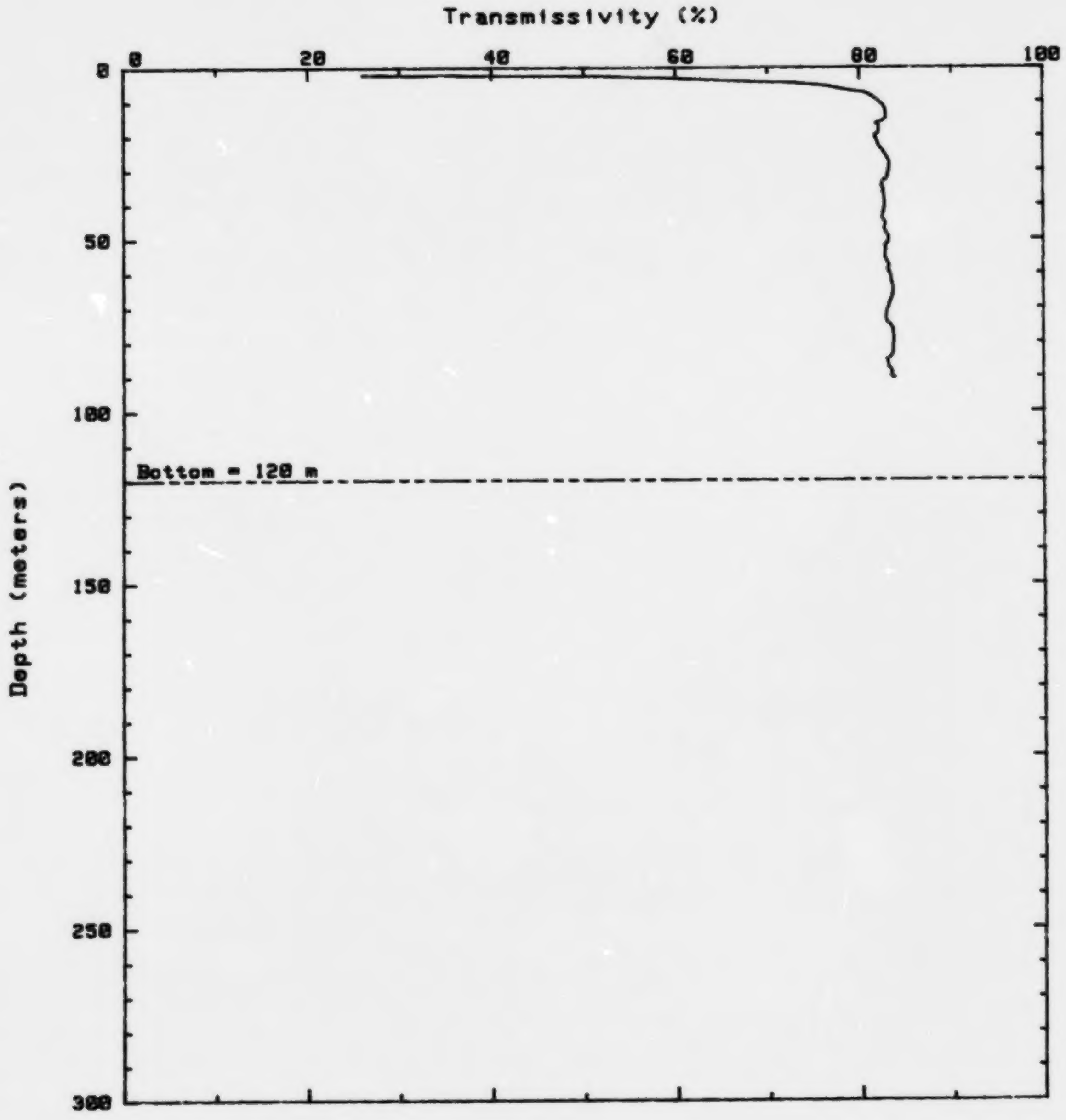
Survey Area : ALICE ARM
Station : P12

Date : 82/10/01
Time : 2022 PDT



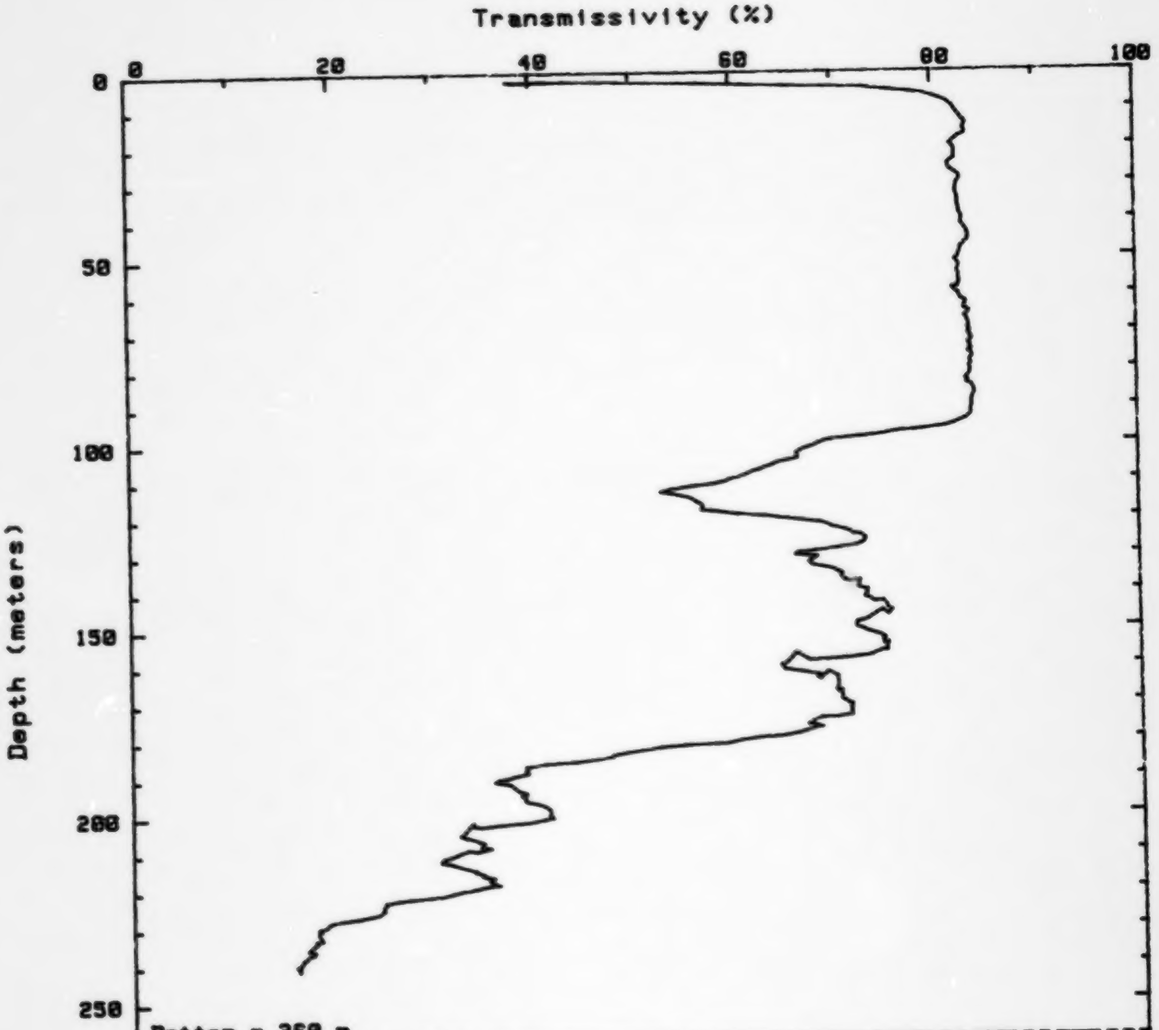
Survey Area : ALICE ARM
Station : 020

Date : 82/10/01
Time : 2056 PDT



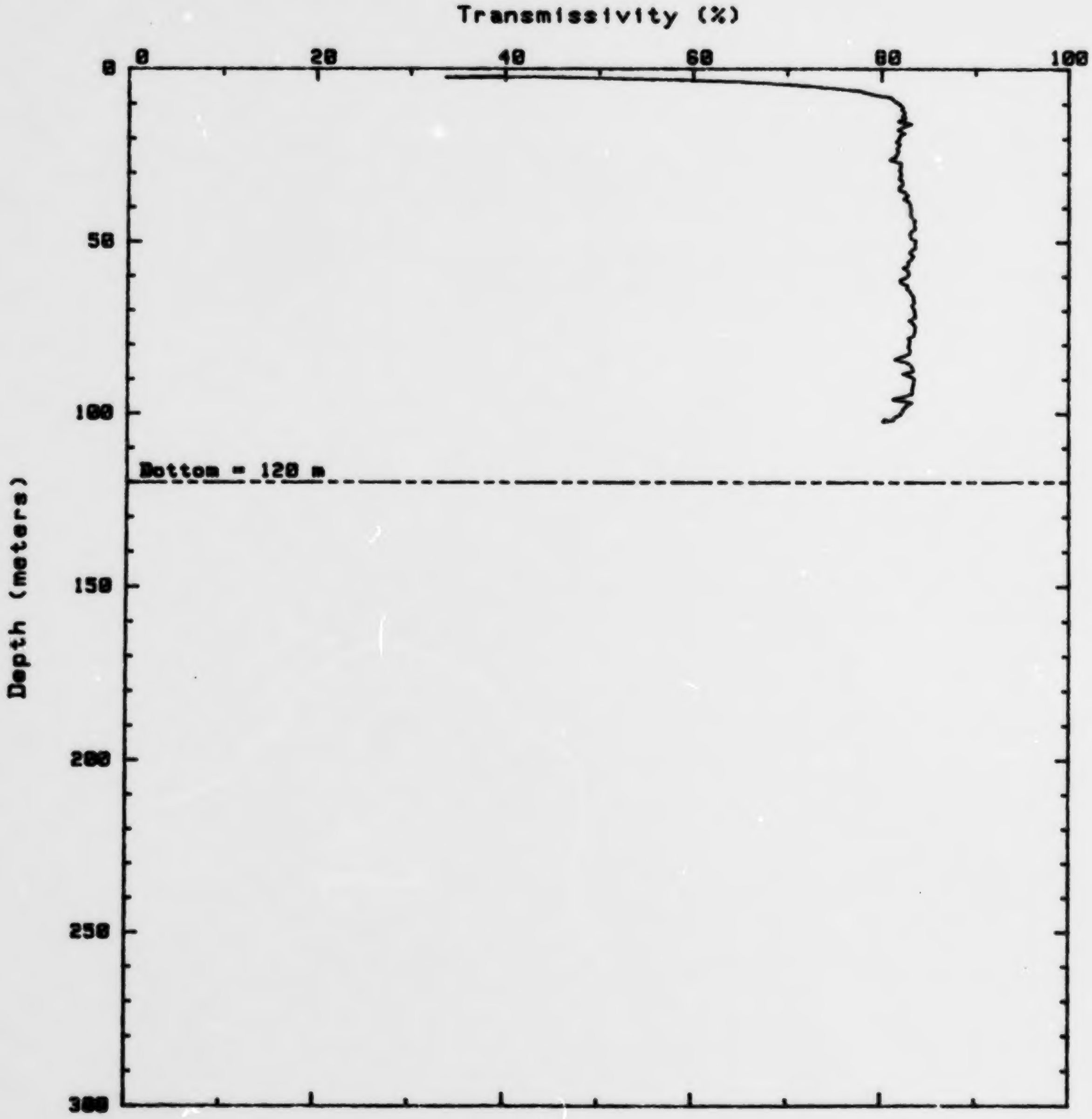
Survey Area : ALICE ARM
Station : Q20

Date : 82/10/01
Time : 2109 PDT



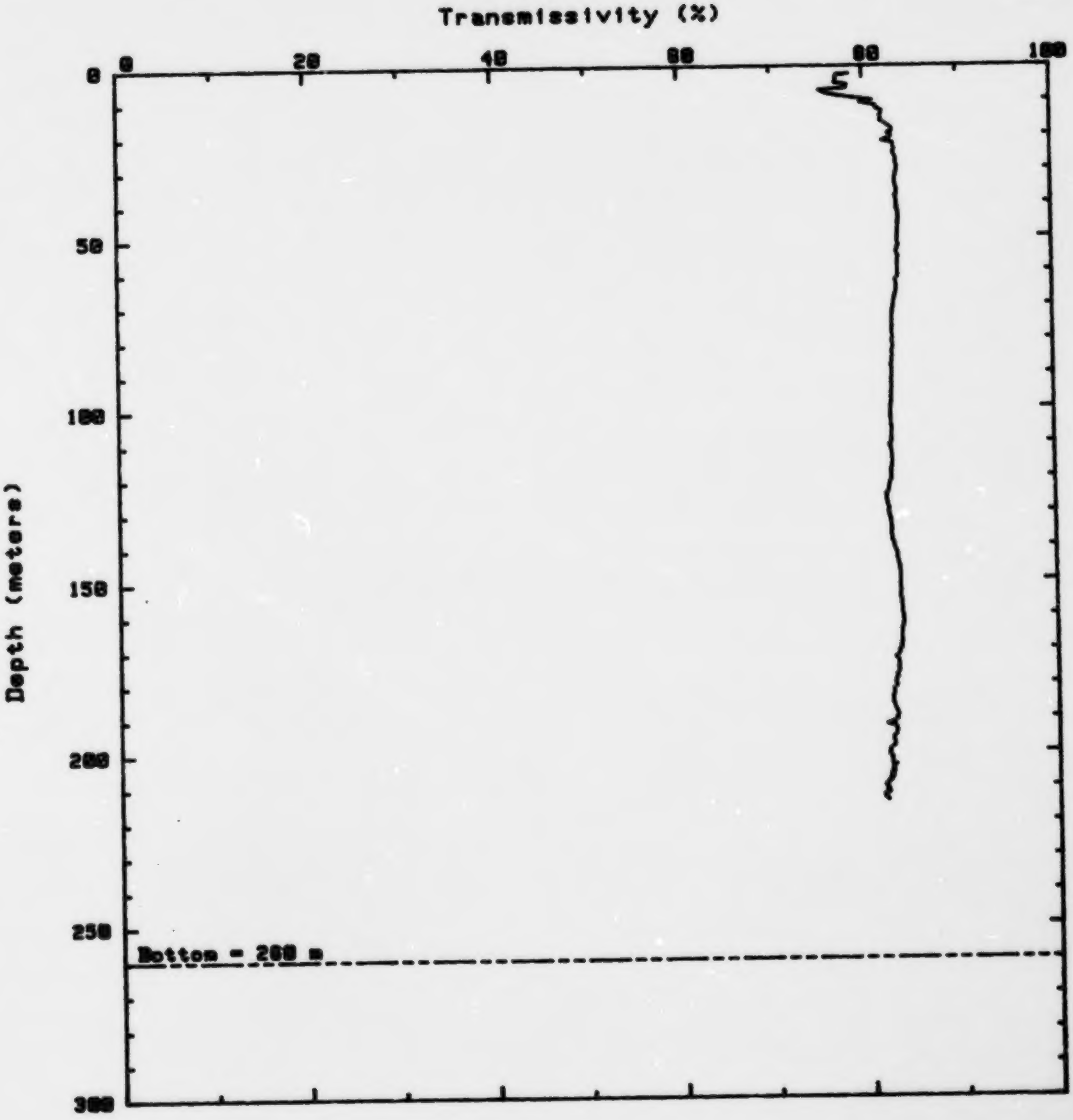
Survey Area : ALICE ARM
Station : S20

Date : 82/10/01
Time : 2134 PDT



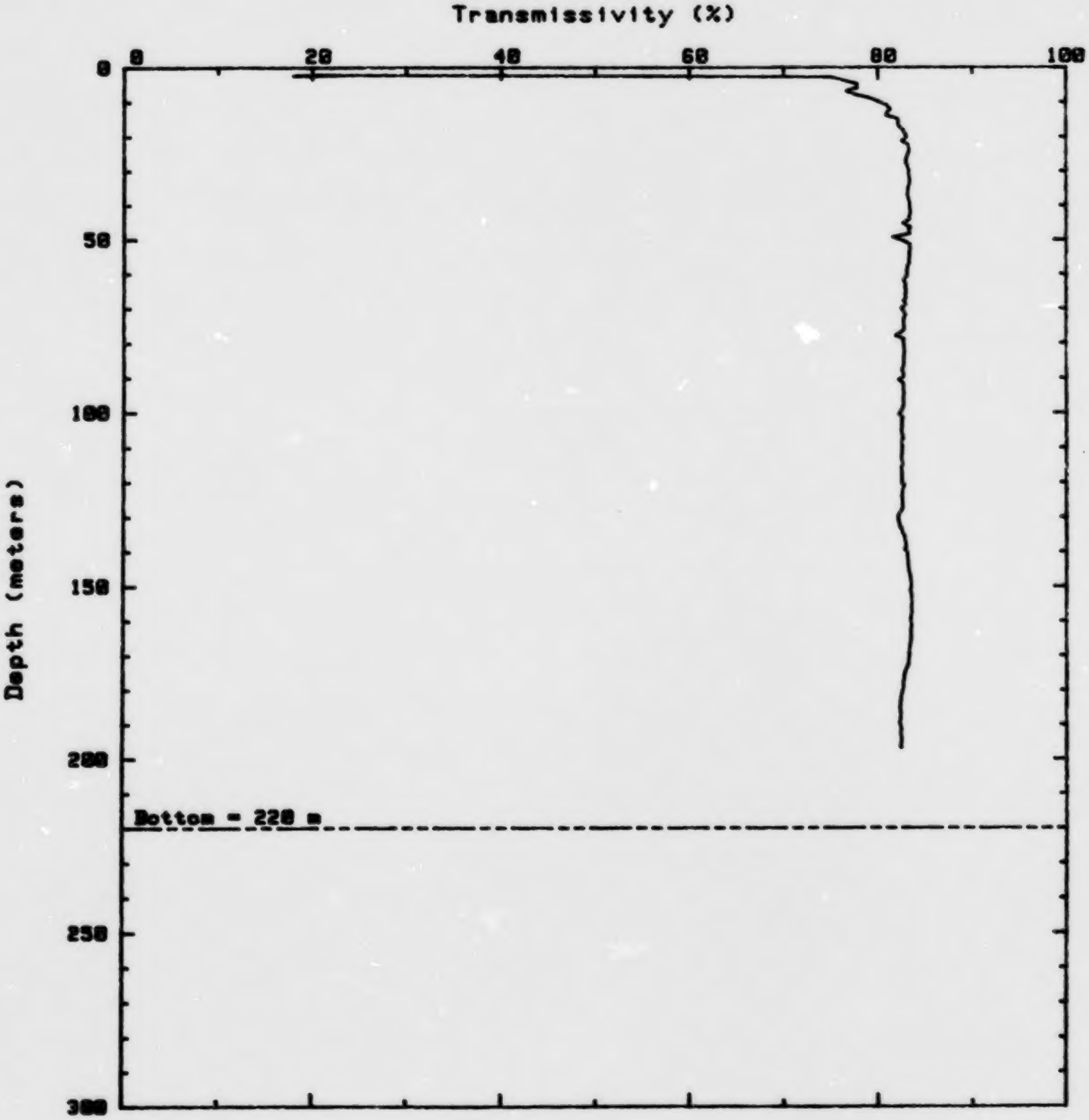
Survey Area : ALICE ARM
Station : R64

Date : 82/10/02
Time : 2006 PDT



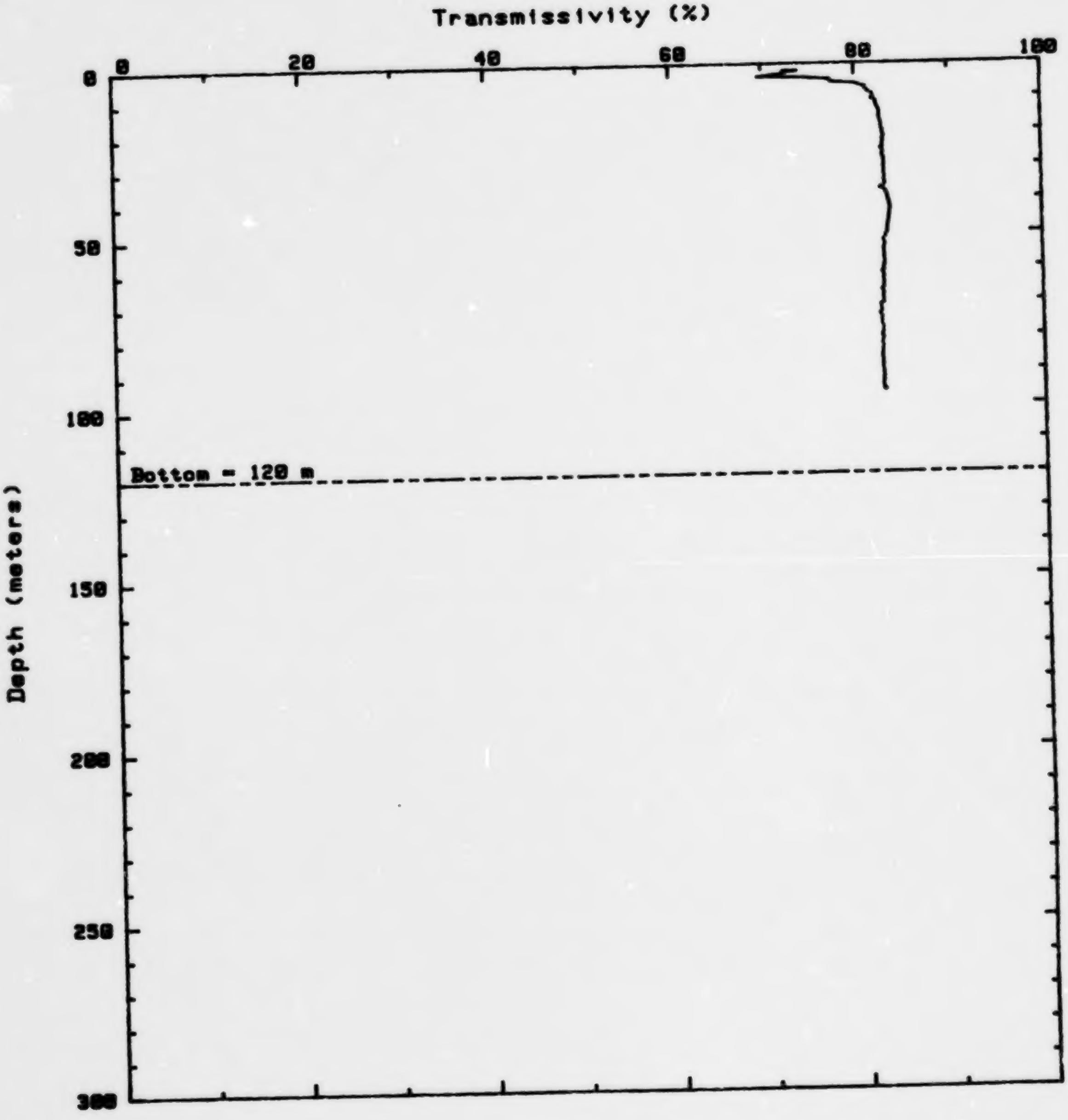
Survey Area : ALICE ARM
Station : T64

Date : 82/10/02
Time : 2029 PDT



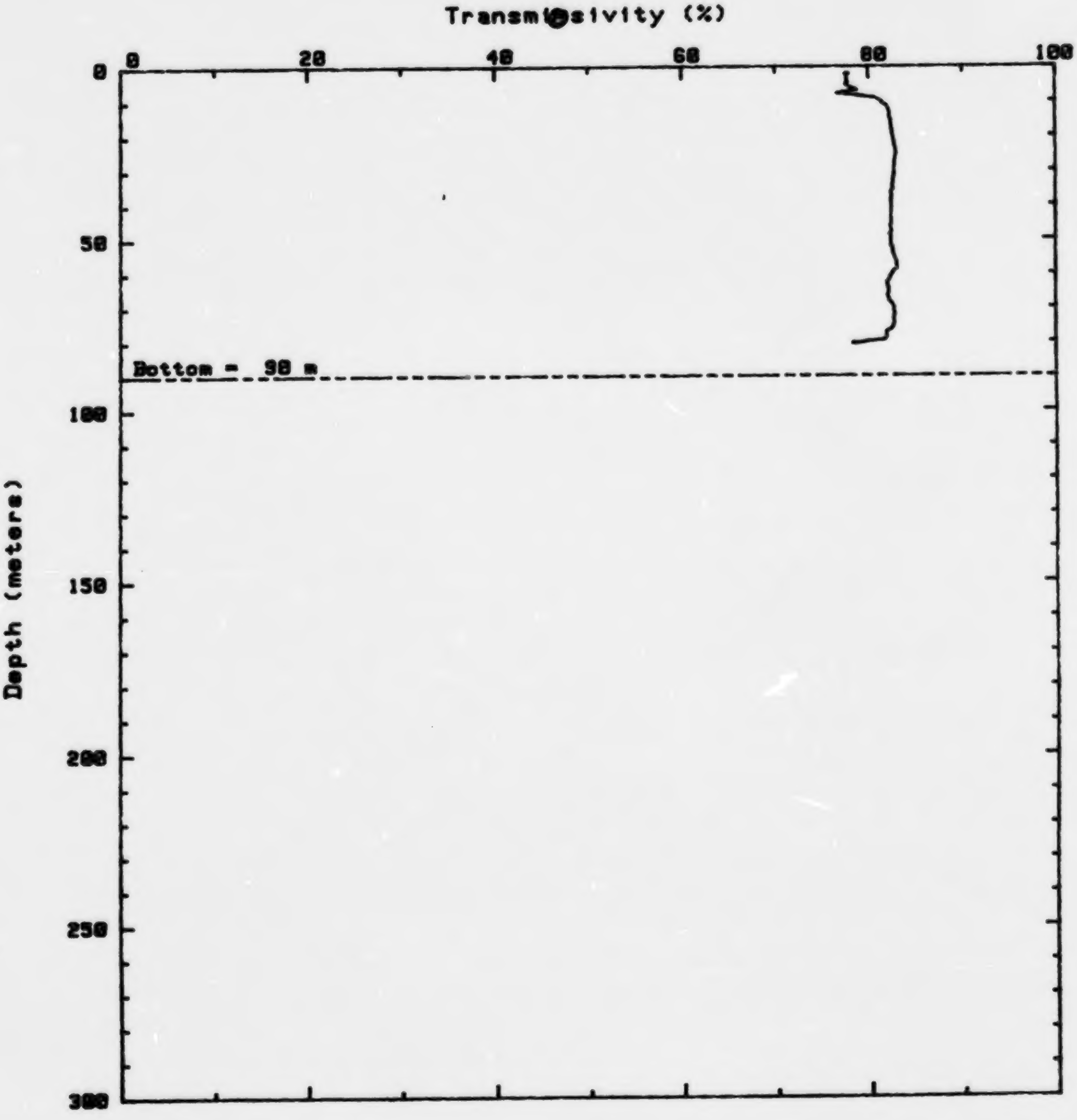
Survey Area : ALICE ARM
Station : V64

Date : 82/10/02
Time : 1934 PDT



Survey Area : ALICE ARM
Station : K1-70

Date : 82/10/02
Time : 1904 PDT



APPENDIX III

CTD-TRANSMITTANCE DATA - JULY 1982

EPS MARINE CTD OCEANOGRAPHY

Survey	: ALICE ARM	Time (start)	: 0013 PDT
Station	: G-5	Time (stop)	: 0016 PDT
Latitude	: 55 27.7		
Longitude	: 129 29.2	Depth (air)	: .60 m
Date	: 82/07/13	Depth (sounder)	: 95.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.5	14.18	3.35	7.5183	5.3506	23.450
2.0	14.18	3.55	7.8590	5.6112	32.875
3.0	14.14	3.37	7.5390	5.3712	38.900
4.0	14.16	5.44	10.9875	8.0721	38.775
5.0	13.73	7.95	14.8077	11.2425	32.950
10.0	11.41	13.56	21.4260	18.0548	46.895
15.0	7.46	22.11	29.4821	28.3314	64.350
20.0	6.62	23.38	30.2151	29.8064	76.962
25.0	6.38	23.72	30.3866	30.2068	78.579
30.0	6.27	23.86	30.4456	30.3650	79.600
35.0	6.19	23.96	30.4939	30.4846	80.312
40.0	6.15	24.02	30.5194	30.5518	80.929
45.0	6.12	24.07	30.5518	30.6131	80.450
50.0	6.11	24.11	30.5894	30.6620	81.244
60.0	6.06	24.16	30.6060	30.7149	80.495
70.0	5.98	24.24	30.6173	30.8002	77.380
80.0	5.89	24.29	30.6022	30.8549	71.900
90.0	5.83	24.33	30.5894	30.8934	69.666
96.1	5.80	21.80	27.6024	27.6828	68.700

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : N-8
Latitude : 55 27.0
Longitude : 129 29.7
Date : 82/07/08

Time (start) : 2008 PDT
Time (stop) : 2012 PDT

Depth (air) : -.40 m
Depth (sounder) : 85.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (°C)	Sigma-T	Conductivity	Salinity	Transmission
2.3	14.18	5.72	11.4831	8.4405	32.500
2.0	14.16	5.67	11.3902	8.3706	32.225
3.0	14.20	6.16	12.2058	9.0122	33.600
4.0	14.18	6.56	12.8460	9.5279	35.350
5.0	14.05	7.19	13.7959	10.3260	38.550
10.0	12.39	11.40	18.8918	15.4436	45.006
15.0	7.32	22.28	29.5655	28.5198	59.092
20.0	6.61	23.36	30.1850	29.7867	77.033
25.0	6.38	23.68	30.3468	30.1577	79.450
30.0	6.29	23.81	30.4014	30.2985	81.186
35.0	6.26	23.85	30.4191	30.3463	81.383
40.0	6.23	23.93	30.4913	30.4479	81.467
45.0	6.24	23.98	30.5577	30.5119	82.079
50.0	6.22	24.04	30.6187	30.5892	83.008
60.0	6.17	24.10	30.6410	30.6581	82.116
70.0	5.98	24.23	30.6017	30.7849	81.715
80.0	5.89	24.01	30.2729	30.4980	50.985
85.4	5.96	8.66	11.9333	11.0192	2.700

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : N-8
Latitude : 55 27.0
Longitude : 129 29.7
Date : 82/07/08

Time (start) : 2354 PDT
Time (stop) : 2357 PDT

Depth (air) : 0.00 m
Depth (sounder) : 101.10 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
2.1	13.95	5.38	10.8016	7.9487	17.250
2.0	13.93	5.39	10.8016	7.9523	22.400
3.0	13.98	5.67	11.2972	8.3352	35.350
4.0	14.02	6.04	11.9167	8.8216	37.000
5.0	14.11	6.41	12.5569	9.3132	38.400
10.0	11.52	13.37	20.8788	17.8257	37.364
15.0	6.86	23.04	30.0391	29.4181	71.220
20.0	6.52	23.51	30.2704	29.9542	78.270
25.0	6.36	23.74	30.3860	30.2207	79.870
30.0	6.28	23.84	30.4356	30.3461	80.780
35.0	6.23	23.95	30.5058	30.4692	80.930
40.0	6.24	24.01	30.5925	30.5531	82.590
45.0	6.23	24.05	30.6338	30.6029	83.580
50.0	6.19	24.09	30.6496	30.6502	83.275
60.0	6.13	24.17	30.6823	30.7375	83.317
70.0	6.00	24.24	30.6425	30.8039	82.691
80.0	5.91	24.28	30.6070	30.8469	81.215
90.0	5.80	24.33	30.5599	30.8923	61.682
98.7	5.74	24.37	30.5533	30.9352	47.962

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : N-8
Latitude : 55 27.0
Longitude : 129 29.7
Date : 82/07/09

Time (start) : 0016 PDT
Time (stop) : 0019 PDT

Depth (air) : 0.00 m
Depth (sounder) : 135.80 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
2.3	14.12	6.03	11.9580	8.8303	40.500
2.0	14.14	6.04	11.9787	8.8427	40.700
3.0	14.14	6.03	11.9580	8.8262	40.350
4.0	14.11	6.20	12.2265	9.0488	39.500
5.0	14.01	6.66	12.9079	9.6199	39.900
10.0	11.09	14.52	22.2236	19.2304	43.519
15.0	6.77	23.17	30.0990	29.5594	72.608
20.0	6.46	23.60	30.3124	30.0588	78.650
25.0	6.33	23.77	30.3915	30.2542	80.067
30.0	6.23	23.90	30.4569	30.4117	81.250
35.0	6.22	23.97	30.5257	30.4934	81.750
40.0	6.22	24.01	30.5808	30.5520	82.192
45.0	6.21	24.05	30.6108	30.5934	83.121
50.0	6.14	24.10	30.6083	30.6501	82.508
60.0	6.09	24.16	30.6324	30.7164	81.773
70.0	5.96	24.23	30.5929	30.7900	75.029
80.0	5.88	24.27	30.5731	30.8322	66.727
90.0	5.83	24.32	30.5700	30.8753	61.308
100.0	5.77	24.36	30.5619	30.9169	45.846
110.0	5.70	24.40	30.5573	30.9692	61.215
120.0	5.67	24.43	30.5636	31.0007	40.731
130.0	5.64	24.46	30.5677	31.0269	13.763
135.9	5.62	24.48	30.5739	31.0520	3.050

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : N-8
Latitude : 55 27.0
Longitude : 129 29.7
Date : 82/07/09

Time (start) : 0048 PDT
Time (stop) : 0051 PDT

Depth (air) : 0.00 m
Depth (sounder) : 155.50 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
2.3	14.29	6.10	12.1645	8.9580	36.250
2.0	14.29	6.14	12.2265	9.0073	36.350
3.0	14.23	6.50	12.7840	9.4652	36.850
4.0	14.21	6.56	12.8666	9.5356	39.150
5.0	14.05	7.15	13.7339	10.2757	40.150
10.0	11.15	14.51	22.4482	19.2338	48.175
15.0	6.94	22.96	30.0184	29.3259	69.110
20.0	6.47	23.57	30.2993	30.0298	78.550
25.0	6.35	23.74	30.3778	30.2211	79.950
30.0	6.26	23.85	30.4273	30.3496	80.900
35.0	6.24	23.94	30.5058	30.4562	81.590
40.0	6.25	23.99	30.5760	30.5218	82.820
45.0	6.24	24.04	30.6307	30.5873	83.350
50.0	6.19	24.08	30.6221	30.6251	83.042
60.0	6.16	24.13	30.6669	30.6906	82.587
70.0	6.03	24.19	30.6173	30.7492	80.020
80.0	5.92	24.26	30.5925	30.8162	74.555
90.0	5.84	24.30	30.5730	30.8623	62.918
100.0	5.77	24.35	30.5615	30.9109	49.915
110.0	5.71	24.40	30.5595	30.9598	48.730
120.0	5.66	24.43	30.5599	31.0005	60.614
130.0	5.64	24.46	30.5698	31.0261	49.500
140.0	5.61	24.48	30.5744	31.0572	13.302
150.0	5.52	24.56	30.5816	31.1410	31.261
155.5	5.49	24.58	30.5843	31.1660	41.283

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : N-8
Latitude : 55 27.0
Longitude : 129 30.7
Date : 82/07/09

Time (start) : 0109 PDT
Time (stop) : 0112 PDT

Depth (air) : 0.00 m
Depth (sounder) : 130.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
2.5	14.00	6.69	12.9492	9.6554	30.850
3.0	14.05	6.81	13.1833	9.8309	32.450
4.0	13.93	7.25	13.8165	10.3763	43.400
5.0	13.82	7.56	14.2502	10.7594	46.900
10.0	10.82	14.93	22.7098	19.7061	49.133
15.0	6.86	23.01	30.0002	29.3729	72.407
20.0	6.49	23.54	30.2779	29.9869	78.792
25.0	6.39	23.68	30.3483	30.1491	80.100
30.0	6.30	23.80	30.4087	30.2973	81.125
35.0	6.24	23.91	30.4751	30.4252	81.571
40.0	6.25	23.97	30.5533	30.5000	82.575
45.0	6.25	23.99	30.5843	30.5273	83.236
50.0	6.24	24.03	30.6221	30.5794	83.717
60.0	6.19	24.11	30.6656	30.6657	83.271
70.0	6.12	24.17	30.6796	30.7387	83.058
80.0	6.04	24.23	30.6654	30.7948	82.114
90.0	5.91	24.28	30.6138	30.8478	80.579
100.0	5.78	24.34	30.5588	30.9024	69.631
110.0	5.74	24.37	30.5562	30.9287	69.582
120.0	5.69	24.41	30.5581	30.9739	65.790
127.4	5.66	24.43	30.5622	31.0003	61.977

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : N-8
Latitude : 55 27.0
Longitude : 129 29.7
Date : 82/07/11

Time (start) : 0115 PDT
Time (stop) : 0118 PDT

Depth (air) : .90 m
Depth (sounder) : 95.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.2	13.25	2.29	5.3294	3.7925	33.250
2.0	13.28	2.34	5.4430	3.8752	32.225
3.0	13.45	2.92	6.4858	4.6561	31.775
4.0	13.75	7.19	13.6100	10.2620	30.850
5.0	13.14	9.38	16.6559	12.9780	32.175
10.0	10.28	16.10	23.9298	21.1131	49.671
15.0	6.92	22.92	29.9570	29.2731	74.456
20.0	6.60	23.39	30.2080	29.8138	77.767
25.0	6.43	23.63	30.3342	30.1010	79.267
30.0	6.33	23.77	30.4030	30.2605	78.933
35.0	6.27	23.86	30.4500	30.3680	79.950
40.0	6.21	23.95	30.4902	30.4656	80.917
45.0	6.17	24.03	30.5521	30.5621	81.722
50.0	6.19	24.07	30.6164	30.6165	81.739
60.0	6.20	24.14	30.7044	30.7025	83.307
70.0	6.09	24.20	30.6829	30.7672	82.436
80.3	5.96	22.24	28.2323	28.2614	78.566

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : N-8
Latitude : 55 27.0
Longitude : 129 29.7
Date : 82/07/11

Time (start) : 1819 PDT
Time (stop) : 1821 PDT

Depth (air) : .60 m
Depth (sounder) : 100.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.1	13.80	3.39	7.4151	5.3231	34.050
1.0	13.82	3.38	7.4151	5.3207	34.250
2.0	13.82	3.53	7.6629	5.5116	33.150
3.0	13.84	3.70	7.9520	5.7324	33.250
4.0	13.96	4.53	9.3974	6.8376	33.200
5.0	14.09	4.83	9.9550	7.2519	32.900
10.0	12.90	9.59	16.7075	13.1971	39.817
15.0	9.70	17.76	25.9132	23.1454	55.940
20.0	7.28	22.42	29.7015	28.6982	70.062
25.0	6.48	23.61	30.3447	30.0745	76.800
30.0	6.31	23.85	30.4707	30.3574	79.712
35.0	6.27	23.91	30.5058	30.4274	80.620
40.0	6.23	24.00	30.5677	30.5350	81.360
45.0	6.23	24.04	30.6204	30.5877	81.762
50.0	6.26	24.05	30.6545	30.5973	82.990
60.0	6.20	24.12	30.6909	30.6821	83.004
70.0	6.10	24.18	30.6669	30.7406	80.300
80.0	6.02	24.21	30.6379	30.7769	66.675
90.0	6.00	24.23	30.6324	30.7869	58.083
96.7	5.95	24.26	30.6256	30.8245	69.975

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : M-9
Latitude : 55 27.1
Longitude : 129 29.9
Date : 82/07/08

Time (start) : 2015 PDT
Time (stop) : 2024 PDT

Depth (air) : 0.00 m
Depth (sounder) : 143.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
2.1	13.21	3.05	6.6097	4.7787	26.400
2.0	13.21	3.21	6.8782	4.9869	26.150
3.0	13.39	3.69	7.7455	5.6378	26.000
4.0	13.76	4.98	10.0376	7.3809	26.825
5.0	13.96	6.09	11.9580	8.8667	28.700
10.0	12.94	10.08	17.3752	13.8531	42.033
15.0	7.58	21.90	29.3335	28.0806	60.021
20.0	6.55	23.45	30.2273	29.8844	75.957
25.0	6.37	23.70	30.3571	30.1819	79.050
30.0	6.28	23.80	30.3925	30.2932	80.250
35.0	6.25	23.87	30.4427	30.3757	80.979
40.0	6.25	23.93	30.5085	30.4480	81.783
45.0	6.25	24.00	30.5931	30.5395	83.000
50.0	6.23	24.05	30.6374	30.6043	83.814
60.0	6.17	24.13	30.6729	30.6938	83.009
70.0	5.99	24.21	30.6049	30.7707	80.025
80.0	5.90	24.26	30.5680	30.8121	67.789
90.0	5.79	24.32	30.5444	30.8780	70.064
100.0	5.70	24.39	30.5333	30.9489	66.807
110.0	5.63	24.45	30.5459	31.0179	63.014
120.0	5.58	24.49	30.5526	31.0643	31.457
130.0	5.55	24.52	30.5567	31.0995	21.640
139.7	5.50	24.57	30.5592	31.1440	23.696

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : M-9
Latitude : 55 27.1
Longitude : 129 29.9
Date : 82/07/08

Time (start) : 2031 PDT
Time (stop) : 2033 PDT

Depth (air) : 0.00 m
Depth (sounder) : 105.80 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
2.1	13.35	3.05	6.6717	4.8087	5.500
2.0	13.38	3.22	6.9539	5.0242	10.333
3.0	13.59	4.36	8.9431	6.5461	28.050
4.0	13.96	5.59	11.1424	8.2153	29.050
5.0	14.16	6.27	12.3710	9.1516	31.500
10.0	13.03	9.77	17.0560	13.4674	46.650
15.0	7.47	22.13	29.5173	28.3518	57.400
20.0	6.69	23.23	30.1059	29.6280	76.442
25.0	6.42	23.63	30.3158	30.0944	78.442
30.0	6.32	23.76	30.3736	30.2428	80.100
35.0	6.24	23.88	30.4427	30.3825	80.600
40.0	6.24	23.94	30.5140	30.4663	81.420
45.0	6.25	23.97	30.5636	30.5065	82.508
50.0	6.23	24.03	30.6049	30.5713	82.967
60.0	6.17	24.11	30.6531	30.6683	83.197
70.0	6.01	24.22	30.6290	30.7868	82.433
80.0	5.92	24.26	30.5858	30.8162	80.854
90.0	5.79	24.31	30.5361	30.8681	74.321
100.0	5.70	24.38	30.5287	30.9379	71.808
106.0	5.66	24.40	30.5223	30.9628	72.250

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : M-9
Latitude : 55 27.1
Longitude : 129 29.9
Date : 82/07/11

Time (start) : 0058 PDT
Time (stop) : 0102 PDT

Depth (air) : .90 m
Depth (sounder) : 164.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.0	14.38	3.43	7.7455	5.4964	12.900
1.0	14.38	3.49	7.8487	5.5751	24.600
3.0	14.41	3.49	7.8694	5.5856	32.800
4.0	14.36	4.47	9.5007	6.8488	33.700
5.0	13.68	8.06	14.9523	11.3773	31.050
10.0	10.72	15.39	23.3302	20.2816	47.521
15.0	7.02	22.84	29.9493	29.1862	71.262
20.0	6.51	23.54	30.2952	29.9903	77.900
25.0	6.39	23.69	30.3654	30.1719	79.510
30.0	6.33	23.79	30.4139	30.2787	79.700
35.0	6.27	23.88	30.4686	30.3894	80.420
40.0	6.21	23.95	30.5017	30.4746	81.250
45.0	6.20	24.00	30.5481	30.5318	81.475
50.0	6.21	24.06	30.6338	30.6130	82.490
60.0	6.20	24.12	30.6944	30.6858	83.621
70.0	6.11	24.19	30.6875	30.7567	83.315
80.0	5.95	24.25	30.6118	30.8101	78.800
90.0	5.84	24.31	30.5781	30.8751	74.580
100.0	5.75	24.37	30.5615	30.9305	71.870
110.0	5.69	24.42	30.5599	30.9839	74.868
120.0	5.60	24.49	30.5613	31.0627	77.706
130.0	5.56	24.53	30.5749	31.1084	75.668
140.0	5.52	24.57	30.5822	31.1489	69.205
150.0	5.45	24.62	30.5884	31.2127	65.645
156.9	5.43	24.64	30.5877	31.2269	65.000

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : M-9
Latitude : 55 27.1
Longitude : 129 29.9
Date : 82/07/11

Time (start) : 1829 PDT
Time (stop) : 1833 PDT

Depth (air) : .60 m
Depth (sounder) : 151.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.3	14.25	3.93	8.5301	6.1163	32.000
1.0	14.25	4.06	8.7573	6.2915	31.950
2.0	14.25	4.11	8.8399	6.3553	31.250
3.0	14.27	4.29	9.1496	6.5921	31.250
4.0	14.26	4.86	10.0892	7.3267	31.375
5.0	14.25	5.64	11.3798	8.3428	31.600
10.0	13.25	8.96	16.0132	12.4602	38.200
15.0	9.49	18.25	26.4171	23.7443	51.420
20.0	7.39	22.22	29.5600	28.4585	70.370
25.0	6.47	23.59	30.3261	30.0560	77.317
30.0	6.32	23.81	30.4314	30.3061	79.940
35.0	6.26	23.90	30.4913	30.4176	81.142
40.0	6.21	23.96	30.5099	30.4839	81.320
45.0	6.23	24.02	30.6008	30.5660	82.120
50.0	6.23	24.06	30.6496	30.6123	82.975
60.0	6.19	24.13	30.6907	30.6900	83.181
70.0	6.08	24.18	30.6481	30.7435	81.045
80.0	6.02	24.21	30.6331	30.7708	79.841
90.0	5.96	24.25	30.6152	30.8066	54.471
100.0	5.93	24.26	30.6124	30.8242	29.627
110.0	5.91	24.27	30.6068	30.8312	8.450
120.0	5.87	24.29	30.5980	30.8524	3.137
130.0	5.83	24.32	30.5860	30.8750	2.621
140.0	5.72	24.39	30.5730	30.9504	41.791
146.2	5.67	24.43	30.5791	30.9991	59.925

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : M-9
Latitude : 55 27.1
Longitude : 129 29.9
Date : 82/07/12

Time (start) : 2323 PDT
Time (stop) : 2326 PDT

Depth (air) : .70 m
Depth (sounder) : 145.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.6	12.66	2.21	4.9990	3.5973	43.550
2.0	12.69	2.54	5.5566	4.0234	43.400
3.0	12.93	6.00	11.2663	8.5541	40.975
4.0	13.12	7.74	14.1263	10.8536	26.700
5.0	13.23	7.32	13.5274	10.3269	42.550
10.0	11.08	14.11	21.8473	18.6961	44.200
15.0	7.38	22.17	29.4967	28.3944	69.875
20.0	6.70	23.24	30.1270	29.6392	75.936
25.0	6.39	23.70	30.3743	30.1821	77.975
30.0	6.28	23.85	30.4427	30.3480	79.636
35.0	6.26	23.93	30.5154	30.4469	81.050
40.0	6.21	24.02	30.5813	30.5628	82.307
45.0	6.25	24.05	30.6492	30.6031	83.279
50.0	6.18	24.10	30.6531	30.6618	82.800
60.0	6.11	24.17	30.6623	30.7379	80.583
70.0	5.96	24.25	30.6160	30.8114	71.642
80.0	5.89	24.29	30.5990	30.8533	58.789
90.0	5.78	24.36	30.5769	30.9232	64.411
100.0	5.66	24.44	30.5592	31.0101	73.604
110.0	5.59	24.51	30.5739	31.0868	51.332
120.0	5.57	24.53	30.5769	31.1067	6.829
130.0	5.52	24.57	30.5815	31.1547	2.850
138.0	5.46	24.62	30.5843	31.2030	9.356

EPS MARINE CTD OCEANOGRAPHY

Survey	: ALICE ARM	Time (start)	: 2055 PDT
Station	: L-10	Time (stop)	: 2106 PDT
Latitude	: 55 27.2		
Longitude	: 129 30.0	Depth (air)	: 0.00 m
Date	: 82/07/08	Depth (sounder)	: 130.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
2.1	13.39	3.81	7.9520	5.7994	9.850
2.0	13.44	4.17	8.5611	6.2716	15.050
3.0	13.87	5.13	10.3473	7.6027	27.300
4.0	14.05	5.26	10.6571	7.8121	29.600
5.0	13.99	6.07	11.9374	8.8458	33.275
10.0	12.51	11.05	18.3543	15.0183	42.725
15.0	7.36	22.20	29.5105	28.4262	61.958
20.0	6.54	23.48	30.2621	29.9294	76.010
25.0	6.37	23.71	30.3640	30.1922	79.058
30.0	6.27	23.84	30.4191	30.3378	81.125
35.0	6.27	23.85	30.4314	30.3487	81.350
40.0	6.24	23.94	30.5085	30.4560	81.783
45.0	6.25	24.01	30.6049	30.5520	83.450
50.0	6.22	24.05	30.6214	30.5964	83.510
60.0	6.08	24.15	30.6090	30.7058	80.340
70.0	5.96	24.22	30.5825	30.7784	73.762
80.0	5.87	24.28	30.5660	30.8315	64.138
90.0	5.79	24.33	30.5512	30.8895	45.957
100.0	5.71	24.39	30.5533	30.9570	29.700
110.0	5.66	24.44	30.5540	31.0037	16.290
120.0	5.59	24.49	30.5599	31.0660	15.773
125.5	5.57	24.51	30.5636	31.0865	19.237

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : L-10
Latitude : 55 27.2
Longitude : 129 30.0
Date : 82/07/11

Time (start) : 1853 PDT
Time (stop) : 1856 PDT

Depth (air) : .70 m
Depth (sounder) : 146.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.2	14.12	3.60	7.9107	5.6586	31.700
1.0	14.12	3.56	7.8487	5.6111	31.750
2.0	14.13	3.76	8.1894	5.8719	31.300
3.0	14.16	4.24	9.0051	6.4980	31.100
4.0	14.14	5.79	11.5657	8.5135	31.150
5.0	13.91	6.52	12.6395	9.4272	31.600
10.0	13.04	9.57	16.7746	13.2047	41.125
15.0	9.27	18.64	26.7558	24.2044	56.790
20.0	7.35	22.31	29.6261	28.5630	71.240
25.0	6.42	23.68	30.3709	30.1550	77.717
30.0	6.27	23.93	30.5223	30.4509	80.870
35.0	6.25	23.96	30.5430	30.4853	81.917
40.0	6.25	24.03	30.6214	30.5717	82.470
45.0	6.23	24.07	30.6496	30.6226	83.075
50.0	6.21	24.10	30.6751	30.6652	82.910
60.0	6.15	24.16	30.6875	30.7221	82.627
70.0	6.06	24.19	30.6462	30.7558	78.659
80.0	6.03	24.21	30.6387	30.7755	76.436
90.0	5.93	24.26	30.6101	30.8212	64.950
100.0	5.88	24.30	30.6049	30.8588	53.850
110.0	5.83	24.32	30.5894	30.8869	50.483
120.0	5.86	24.30	30.5980	30.8577	6.012
130.0	5.82	24.33	30.5946	30.8900	.829
139.6	5.81	24.33	30.5974	30.8944	1.055

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : L-10
Latitude : 55 27.2
Longitude : 129 30.0
Date : 82/07/11

Time (start) : 0040 PDT
Time (stop) : 0043 PDT

Depth (air) : .90 m
Depth (sounder) : 113.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.0	13.53	2.57	5.9283	4.2180	32.250
1.0	13.52	2.59	5.9489	4.2357	32.300
2.0	13.63	2.80	6.3516	4.5295	31.850
3.0	14.11	3.36	7.4977	5.3445	31.850
4.0	14.26	4.70	9.8208	7.1250	32.350
5.0	13.50	8.76	15.9435	12.2550	30.550
10.0	10.84	14.94	22.8543	19.7286	46.983
15.0	6.99	22.83	29.9146	29.1665	68.329
20.0	6.51	23.53	30.2834	29.9791	76.900
25.0	6.32	23.80	30.4161	30.2937	78.829
30.0	6.28	23.84	30.4338	30.3450	79.707
35.0	6.24	23.90	30.4633	30.4071	80.379
40.0	6.20	23.98	30.5194	30.5033	81.171
45.0	6.19	24.00	30.5371	30.5320	81.614
50.0	6.19	24.05	30.6015	30.5965	82.058
60.0	6.15	24.12	30.6410	30.6740	81.604
70.0	6.03	24.20	30.6301	30.7646	79.361
80.0	5.91	24.27	30.5980	30.8327	77.206
90.0	5.82	24.33	30.5797	30.8912	74.928
100.0	5.75	24.38	30.5657	30.9399	71.335
108.5	5.67	24.44	30.5636	31.0048	71.225

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : L-10
Latitude : 55 27.2
Longitude : 129 30.0
Date : 82/07/12

Time (start) : 2352 PDT
Time (stop) : 2356 PDT

Depth (air) : .60 m
Depth (sounder) : 160.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
.9	14.02	4.24	8.9431	6.4739	4.950
1.0	14.02	4.19	8.8605	6.4096	8.600
2.0	14.03	4.64	9.6143	6.9976	33.350
3.0	13.98	5.20	10.5125	7.7122	40.250
4.0	13.93	6.14	12.0200	8.9291	41.475
5.0	13.77	6.75	12.9286	9.6966	44.150
10.0	11.21	14.09	21.8163	18.6899	41.350
15.0	7.11	22.63	29.7867	28.9294	69.294
20.0	6.62	23.37	30.2067	29.7991	76.593
25.0	6.45	23.62	30.3365	30.0887	77.543
30.0	6.30	23.85	30.4526	30.3495	78.437
35.0	6.25	23.91	30.4958	30.4318	80.536
40.0	6.22	24.00	30.5610	30.5304	81.719
45.0	6.23	24.05	30.6403	30.6050	82.929
50.0	6.19	24.09	30.6436	30.6493	82.712
60.0	6.12	24.16	30.6636	30.7277	81.455
70.0	5.99	24.24	30.6283	30.7995	76.037
80.0	5.88	24.30	30.6036	30.8659	64.453
90.0	5.79	24.36	30.5815	30.9241	48.453
100.0	5.71	24.42	30.5791	30.9899	42.559
110.0	5.65	24.47	30.5804	31.0432	24.372
120.0	5.59	24.51	30.5843	31.0903	3.478
130.0	5.57	24.53	30.5868	31.1091	.516
140.0	5.56	24.54	30.5894	31.1198	.431
150.0	5.59	24.51	30.5972	31.0939	.334
157.0	5.66	24.46	30.5990	31.0328	.314

EPS MARINE CTD OCEANOGRAPHY

Survey	: ALICE ARM	Time (start)	: 2219 PDT
Station	: 0-10	Time (stop)	: 2220 PDT
Latitude	: 55 26.9		
Longitude	: 129 30.3	Depth (air)	: 0.00 m
Date	: 82/07/08	Depth (sounder)	: 90.10 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
2.1	14.05	5.30	10.7190	7.8613	31.950
2.0	14.05	5.36	10.8223	7.9430	32.000
3.0	14.22	6.04	12.0200	8.8571	32.075
4.0	14.30	6.41	12.6808	9.3652	35.150
5.0	14.32	6.58	12.9699	9.5918	35.950
10.0	12.33	11.68	19.0771	15.7936	39.406
15.0	7.05	22.74	29.8581	29.0586	65.708
20.0	6.52	23.51	30.2745	29.9571	77.600
25.0	6.35	23.74	30.3778	30.2204	80.025
30.0	6.28	23.83	30.4191	30.3246	80.810
35.0	6.24	23.91	30.4776	30.4216	81.500
40.0	6.25	23.98	30.5636	30.5114	82.450
45.0	6.24	24.02	30.6118	30.5649	83.208
50.0	6.22	24.05	30.6324	30.6042	82.700
60.0	6.17	24.15	30.6964	30.7151	83.761
70.0	6.04	24.22	30.6557	30.7873	82.712
80.0	5.88	24.28	30.5825	30.8429	78.312
88.5	5.81	24.32	30.5615	30.8805	73.330

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : N-11
Latitude : 55 27.0
Longitude : 129 30.2
Date : 82/07/08

Time (start) : 2132 PDT
Time (stop) : 2139 PDT

Depth (air) : 0.00 m
Depth (sounder) : 165.90 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
2.3	14.14	5.70	11.4211	8.3990	30.400
2.0	14.14	5.67	11.3798	8.3662	31.850
3.0	14.16	5.61	11.2869	8.2886	34.000
4.0	14.27	5.87	11.7722	8.6500	34.100
10.0	12.61	10.96	18.1619	14.9120	33.521
15.0	7.15	22.59	29.7789	28.8920	62.110
20.0	6.57	23.42	30.2208	29.8564	77.130
25.0	6.36	23.71	30.3654	30.1946	79.760
30.0	6.31	23.77	30.3860	30.2595	80.320
35.0	6.24	23.90	30.4727	30.4165	81.370
40.0	6.25	23.97	30.5595	30.5034	82.670
45.0	6.26	24.01	30.6049	30.5467	83.575
50.0	6.24	24.06	30.6545	30.6170	83.850
60.0	6.20	24.12	30.6843	30.6820	83.831
70.0	6.03	24.21	30.6297	30.7678	81.875
80.0	5.87	24.28	30.5677	30.8391	70.840
90.0	5.78	24.34	30.5523	30.8958	67.159
100.0	5.71	24.39	30.5512	30.9519	36.775
110.0	5.66	24.43	30.5574	31.0003	25.210
120.0	5.59	24.50	30.5580	31.0689	47.300
130.0	5.53	24.55	30.5657	31.1240	43.540
140.0	5.48	24.59	30.5692	31.1700	31.509
150.0	5.46	24.61	30.5730	31.1905	37.255
160.0	5.44	24.62	30.5754	31.2079	53.375
165.6	5.43	24.63	30.5843	31.2165	57.050

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : M-12
Latitude : 55 27.1
Longitude : 129 30.4
Date : 82/07/08

Time (start) : 2119 PDT
Time (stop) : 2123 PDT

Depth (air) : 0.00 m
Depth (sounder) : 97.80 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.9	13.64	3.66	7.8074	5.6494	27.700
2.0	13.57	3.47	7.4564	5.3873	26.500
3.0	13.52	4.19	8.6334	6.3144	27.200
4.0	13.82	5.54	10.9875	8.1224	27.650
5.0	13.98	6.63	12.8460	9.5763	31.200
10.0	12.31	11.60	18.9997	15.6892	42.643
15.0	7.08	22.72	29.8615	29.0383	64.280
20.0	6.59	23.39	30.2002	29.8178	77.210
25.0	6.43	23.63	30.3199	30.0908	78.870
30.0	6.33	23.77	30.3932	30.2564	80.150
35.0	6.26	23.88	30.4604	30.3904	81.190
40.0	6.26	23.94	30.5306	30.4622	82.170
45.0	6.26	23.96	30.5512	30.4859	82.410
50.0	6.24	24.02	30.6049	30.5621	83.170
60.0	6.17	24.12	30.6589	30.6750	83.323
70.0	5.96	24.23	30.5966	30.7910	78.530
80.0	5.85	24.30	30.5615	30.8532	64.995
90.0	5.77	24.35	30.5523	30.9075	43.668
96.5	5.75	24.37	30.5567	30.9301	40.444

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : P-12
Latitude : 55 26.8
Longitude : 129 30.4
Date : 82/07/08

Time (start) : 2230 PDT
Time (stop) : 2238 PDT

Depth (air) : 0.00 m
Depth (sounder) : 165.30 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
2.1	14.38	6.25	12.4536	9.1673	36.450
2.0	14.38	6.24	12.4399	9.1549	36.800
3.0	14.38	6.23	12.4123	9.1343	36.250
4.0	14.38	6.25	12.4536	9.1670	36.400
5.0	14.41	6.29	12.5362	9.2242	36.350
10.0	11.65	12.92	20.1894	17.2666	40.473
15.0	6.90	22.93	29.9441	29.2812	75.583
20.0	6.50	23.53	30.2745	29.9805	78.844
25.0	6.40	23.66	30.3410	30.1353	80.144
30.0	6.32	23.78	30.3958	30.2652	80.900
35.0	6.24	23.90	30.4627	30.4113	81.717
40.0	6.24	23.96	30.5315	30.4813	82.556
45.0	6.26	24.00	30.6049	30.5426	83.462
50.0	6.25	24.05	30.6508	30.6031	84.228
60.0	6.19	24.13	30.6934	30.6944	84.614
70.0	6.05	24.22	30.6703	30.7906	83.981
80.0	5.87	24.29	30.5745	30.8488	76.603
90.0	5.77	24.35	30.5498	30.9073	69.261
100.0	5.71	24.39	30.5473	30.9525	73.171
110.0	5.67	24.42	30.5533	30.9901	72.936
120.0	5.61	24.47	30.5544	31.0426	71.619
130.0	5.55	24.53	30.5613	31.1053	74.244
140.0	5.48	24.59	30.5701	31.1697	64.411
150.0	5.46	24.61	30.5723	31.1909	62.811
160.0	5.43	24.63	30.5769	31.2179	62.264
165.4	5.42	24.64	30.5843	31.2333	62.950

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : P-12
Latitude : 55 26.8
Longitude : 129 30.4
Date : 82/07/11

Time (start) : 1930 PDT
Time (stop) : 1933 PDT

Depth (air) : .30 m
Depth (sounder) : 157.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.6	13.66	3.21	7.0640	5.0721	33.600
2.0	13.66	3.49	7.5286	5.4321	33.675
3.0	13.87	4.84	9.8724	7.2273	31.550
4.0	14.04	5.00	10.2234	7.4734	32.850
5.0	14.11	5.42	10.9462	8.0298	34.150
10.0	13.39	8.61	15.5976	12.0267	41.944
15.0	9.84	17.52	25.6111	22.8611	48.092
20.0	7.15	22.61	29.7954	28.9100	71.440
25.0	6.57	23.44	30.2435	29.8794	76.925
30.0	6.32	23.83	30.4535	30.3305	79.950
35.0	6.26	23.98	30.5760	30.5176	81.800
40.0	6.24	24.04	30.6290	30.5888	82.825
45.0	6.23	24.07	30.6565	30.6249	83.275
50.0	6.21	24.10	30.6669	30.6561	83.500
60.0	6.16	24.15	30.6846	30.7182	83.143
70.0	6.07	24.21	30.6703	30.7756	83.287
80.0	5.97	24.25	30.6238	30.8100	79.737
90.0	5.91	24.28	30.6068	30.8434	77.427
100.0	5.83	24.33	30.5894	30.8889	75.071
110.0	5.77	24.36	30.5791	30.9273	73.471
120.0	5.71	24.40	30.5739	30.9715	73.350
130.0	5.65	24.45	30.5688	31.0214	76.700
140.0	5.58	24.52	30.5808	31.0921	73.771
150.3	5.53	24.56	30.5887	31.1413	69.082

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : P-12
Latitude : 55 26.8
Longitude : 129 30.4
Date : 82/07/11

Time (start) : 0014 PDT
Time (stop) : 0017 PDT

Depth (air) : .60 m
Depth (sounder) : 186.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.7	14.02	3.44	7.6009	5.4361	13.650
2.0	14.02	3.44	7.6009	5.4361	26.600
3.0	14.07	3.45	7.6422	5.4602	33.900
4.0	14.14	3.57	7.8694	5.6242	33.850
5.0	14.18	6.10	12.0923	8.9336	33.525
10.0	10.95	14.93	22.8022	19.7286	36.129
15.0	7.03	22.80	29.9058	29.1333	71.336
20.0	6.52	23.50	30.2662	29.9491	77.730
25.0	6.43	23.65	30.3468	30.1202	79.258
30.0	6.34	23.77	30.4053	30.2613	80.700
35.0	6.31	23.85	30.4741	30.3613	81.867
40.0	6.25	23.92	30.5017	30.4428	82.000
45.0	6.24	24.00	30.5877	30.5409	82.300
50.0	6.24	24.06	30.6600	30.6157	83.525
60.0	6.20	24.13	30.6944	30.6921	83.890
70.0	6.04	24.22	30.6583	30.7864	82.667
80.0	5.93	24.27	30.6132	30.8310	79.470
90.0	5.79	24.34	30.5670	30.9025	73.058
100.0	5.68	24.41	30.5507	30.9805	77.594
110.0	5.63	24.46	30.5553	31.0307	79.700
120.0	5.59	24.50	30.5677	31.0760	78.000
130.0	5.55	24.53	30.5728	31.1114	77.956
140.0	5.50	24.58	30.5822	31.1658	75.625
150.0	5.46	24.62	30.5863	31.2072	72.095
160.0	5.43	24.64	30.5925	31.2311	69.865
170.0	5.42	24.65	30.5925	31.2347	74.160
178.2	5.40	24.67	30.6020	31.2627	74.807

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : P-12
Latitude : 55 26.8
Longitude : 129 30.4
Date : 82/07/12

Time (start) : 2254 PDT
Time (stop) : 2259 PDT

Depth (air) : .80 m
Depth (sounder) : 179.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.5	13.82	3.00	6.7749	4.8298	22.050
2.0	13.82	3.33	7.3221	5.2499	34.675
3.0	13.73	3.80	8.0759	5.8445	39.450
4.0	13.73	4.48	9.2116	6.7326	40.300
5.0	13.40	7.05	13.1867	10.0011	35.850
10.0	11.50	13.34	21.2023	17.7845	46.461
15.0	7.78	21.62	29.1594	27.7495	62.993
20.0	6.83	23.06	30.0385	29.4375	75.386
25.0	6.56	23.46	30.2504	29.8994	77.383
30.0	6.34	23.78	30.4191	30.2722	79.129
35.0	6.29	23.93	30.5518	30.4614	82.129
40.0	6.26	24.02	30.6285	30.5688	83.071
45.0	6.25	24.07	30.6757	30.6324	83.407
50.0	6.23	24.11	30.7082	30.6774	83.714
60.0	6.09	24.19	30.6717	30.7596	82.044
70.0	5.95	24.26	30.6167	30.8252	78.196
80.0	5.87	24.30	30.5916	30.8637	73.664
90.0	5.78	24.35	30.5680	30.9111	69.193
100.0	5.69	24.42	30.5636	30.9880	71.637
110.0	5.61	24.49	30.5636	31.0590	76.363
120.0	5.55	24.54	30.5695	31.1136	76.429
130.0	5.50	24.59	30.5801	31.1697	70.227
140.0	5.45	24.62	30.5787	31.2077	57.887
150.0	5.44	24.64	30.5870	31.2245	41.747
160.0	5.43	24.64	30.5894	31.2274	28.519
170.0	5.43	24.65	30.5988	31.2394	25.609
175.7	5.42	24.65	30.5966	31.2397	36.610

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : 0-13
Latitude : 55 26.9
Longitude : 129 30.6
Date : 82/07/08

Time (start) : 2300 PDT
Time (stop) : 2310 PDT

Depth (air) : 0.00 m
Depth (sounder) : 187.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
2.1	13.23	3.46	7.2912	5.3061	28.700
2.0	13.21	3.36	7.1260	5.1797	28.250
3.0	13.24	3.72	7.7351	5.6525	28.050
5.0	13.65	5.47	10.8016	8.0092	29.850
10.0	12.06	11.99	19.2733	16.1428	37.669
15.0	6.89	22.99	30.0102	29.3562	69.560
20.0	6.50	23.53	30.2779	29.9816	78.475
25.0	6.36	23.73	30.3778	30.2145	80.320
30.0	6.30	23.81	30.4191	30.3088	81.030
35.0	6.25	23.89	30.4604	30.3945	81.492
40.0	6.25	23.96	30.5464	30.4896	82.875
45.0	6.26	24.02	30.6297	30.5659	83.980
50.0	6.23	24.06	30.6496	30.6179	84.192
60.0	6.18	24.14	30.6890	30.7000	84.439
70.0	6.02	24.22	30.6349	30.7851	82.877
80.0	5.87	24.29	30.5739	30.8443	77.133
90.0	5.78	24.34	30.5550	30.8987	62.125
100.0	5.73	24.38	30.5542	30.9423	67.273
110.0	5.66	24.43	30.5567	31.0010	68.487
120.0	5.60	24.49	30.5636	31.0618	65.475
130.0	5.54	24.54	30.5653	31.1140	67.137
140.0	5.50	24.58	30.5722	31.1571	61.912
150.0	5.47	24.60	30.5779	31.1806	59.592
160.0	5.44	24.62	30.5774	31.2087	60.650
170.0	5.42	24.64	30.5877	31.2336	58.154
181.4	5.42	24.64	30.5894	31.2276	30.920

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : 0-13
Latitude : 55 26.9
Longitude : 129 30.6
Date : 82/07/11

Time (start) : 1944 PDT
Time (stop) : 1948 PDT

Depth (air) : .70 m
Depth (sounder) : 208.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.2	13.59	2.83	6.3826	4.5583	34.000
1.0	13.59	2.88	6.4652	4.6215	33.950
2.0	13.75	3.77	8.0346	5.8098	33.400
3.0	13.93	4.43	9.2116	6.6985	32.000
4.0	13.93	4.71	9.6865	7.0709	32.550
5.0	13.74	6.94	13.2074	9.9350	32.375
10.0	12.31	11.42	19.0126	15.4555	44.381
15.0	8.34	20.58	28.4091	26.5217	58.342
20.0	6.85	23.05	30.0474	29.4301	74.733
25.0	6.43	23.65	30.3468	30.1174	77.925
30.0	6.34	23.80	30.4356	30.2947	80.240
35.0	6.27	23.94	30.5430	30.4693	82.083
40.0	6.26	24.01	30.6152	30.5521	82.967
45.0	6.24	24.07	30.6600	30.6233	83.342
50.0	6.21	24.10	30.6806	30.6653	83.358
60.0	6.17	24.16	30.7023	30.7247	83.511
70.0	6.08	24.20	30.6755	30.7704	83.342
80.0	5.98	24.24	30.6240	30.8044	78.954
90.0	5.90	24.29	30.6066	30.8498	74.225
100.0	5.84	24.32	30.5894	30.8806	68.308
110.0	5.75	24.38	30.5763	30.9435	61.027
120.0	5.69	24.42	30.5700	30.9883	63.181
130.0	5.65	24.45	30.5757	31.0247	60.308
140.0	5.60	24.50	30.5827	31.0783	59.477
150.0	5.54	24.55	30.5911	31.1360	38.487
160.0	5.49	24.59	30.5934	31.1774	9.861
170.0	5.50	24.59	30.6003	31.1750	4.006
180.0	5.46	24.62	30.6008	31.2041	3.850
190.0	5.41	24.66	30.6049	31.2463	37.044
201.0	5.42	24.65	30.6123	31.2422	25.564

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : 0-13
Latitude : 55 26.9
Longitude : 129 30.6
Date : 82/07/11

Time (start) : 0000 PDT
Time (stop) : 0003 PDT

Depth (air) : .80 m
Depth (sounder) : 219.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.5	14.39	3.80	8.3856	5.9829	33.600
2.0	14.39	3.85	8.4579	6.0383	33.300
3.0	14.36	3.98	8.6747	6.2105	32.800
4.0	14.34	4.53	9.5833	6.9161	32.700
5.0	14.11	6.34	12.4536	9.2304	32.250
10.0	12.01	12.35	20.0218	16.6062	40.725
15.0	7.17	22.62	29.8243	28.9280	63.540
20.0	6.53	23.50	30.2693	29.9431	77.275
25.0	6.41	23.68	30.3623	30.1531	79.300
30.0	6.33	23.79	30.4273	30.2888	81.020
35.0	6.28	23.88	30.4758	30.3885	81.675
40.0	6.24	23.94	30.5140	30.4659	81.240
45.0	6.24	24.02	30.6101	30.5680	82.150
50.0	6.23	24.07	30.6545	30.6195	83.410
60.0	6.16	24.14	30.6762	30.7044	83.059
70.0	6.06	24.21	30.6600	30.7741	83.050
80.0	5.93	24.26	30.6003	30.8225	79.156
90.0	5.78	24.35	30.5659	30.9157	72.361
100.0	5.68	24.43	30.5553	30.9923	74.365
110.0	5.62	24.47	30.5567	31.0420	76.911
120.0	5.57	24.51	30.5636	31.0873	77.244
130.0	5.53	24.55	30.5739	31.1312	78.785
140.0	5.49	24.59	30.5820	31.1703	75.961
150.0	5.45	24.63	30.5884	31.2177	70.705
160.0	5.42	24.65	30.5905	31.2368	75.360
170.0	5.41	24.66	30.5934	31.2466	73.422
180.0	5.41	24.66	30.6028	31.2566	72.040
190.0	5.40	24.67	30.6070	31.2598	70.765
200.0	5.39	24.67	30.6090	31.2657	70.790
210.0	5.39	24.68	30.6162	31.2741	69.350
215.5	5.41	24.66	30.6152	31.2552	71.375

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : 0-13
Latitude : 55 26.9
Longitude : 129 30.6
Date : 82/07/12

Time (start) : 2241 PDT
Time (stop) : 2246 PDT

Depth (air) : .60 m
Depth (sounder) : 197.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.3	14.18	3.62	7.9726	5.6984	39.300
1.0	14.20	3.71	8.1378	5.8226	39.800
2.0	14.23	3.73	8.1791	5.8489	39.650
3.0	14.29	3.88	8.4682	6.0629	39.550
4.0	14.30	4.78	9.9756	7.2332	39.450
5.0	13.68	7.82	14.5806	11.0709	38.600
10.0	11.49	13.50	21.4131	17.9844	41.369
15.0	7.47	22.13	29.5242	28.3578	62.733
20.0	6.83	23.07	30.0474	29.4487	75.792
25.0	6.53	23.50	30.2711	29.9457	77.908
30.0	6.32	23.82	30.4500	30.3240	79.850
35.0	6.29	23.91	30.5326	30.4367	82.100
40.0	6.28	23.98	30.6015	30.5236	82.750
45.0	6.25	24.06	30.6634	30.6165	83.083
50.0	6.22	24.11	30.6964	30.6785	83.857
60.0	6.11	24.18	30.6724	30.7497	82.453
70.0	5.96	24.26	30.6240	30.8217	78.565
80.0	5.87	24.30	30.5963	30.8663	73.342
90.0	5.79	24.35	30.5763	30.9176	72.169
100.0	5.67	24.44	30.5652	31.0116	72.469
110.0	5.61	24.49	30.5684	31.0662	69.446
120.0	5.54	24.54	30.5731	31.1240	74.542
130.0	5.48	24.59	30.5763	31.1778	60.827
140.0	5.47	24.61	30.5857	31.1996	46.307
150.0	5.45	24.63	30.5922	31.2206	38.350
160.0	5.43	24.65	30.5946	31.2369	26.757
170.0	5.43	24.65	30.5986	31.2363	18.915
180.0	5.42	24.65	30.6035	31.2423	17.180
190.8	5.42	24.65	30.6088	31.2462	17.700

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : N-14
Latitude : 55 27.0
Longitude : 129.30.7
Date : 82/07/10

Time (start) : 2346 PDT
Time (stop) : 2349 PDT

Depth (air) : .70 m
Depth (sounder) : 128.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.2	13.28	2.56	5.8044	4.1508	8.550
1.0	13.27	2.59	5.8457	4.1843	16.600
2.0	13.30	2.55	5.8044	4.1488	33.000
3.0	13.27	2.45	5.6185	4.0107	33.050
4.0	13.55	4.83	9.6865	7.1492	32.925
5.0	13.68	6.41	12.3297	9.2331	28.700
10.0	12.41	10.81	17.9336	14.6847	36.169
15.0	7.15	22.60	29.7937	28.9078	63.250
20.0	6.56	23.46	30.2497	29.9000	77.480
25.0	6.39	23.70	30.3719	30.1771	79.879
30.0	6.33	23.80	30.4328	30.2969	81.200
35.0	6.29	23.89	30.4948	30.4001	81.600
40.0	6.26	23.94	30.5257	30.4614	81.975
45.0	6.26	23.98	30.5784	30.5135	82.350
50.0	6.26	24.03	30.6359	30.5781	83.633
60.0	6.19	24.13	30.6940	30.6997	83.819
70.0	6.01	24.22	30.6290	30.7836	80.962
80.0	5.91	24.28	30.6049	30.8410	77.054
90.0	5.77	24.36	30.5684	30.9212	71.596
100.0	5.69	24.42	30.5636	30.9920	71.015
110.0	5.64	24.46	30.5684	31.0358	70.631
118.0	5.58	24.51	30.5677	31.0820	71.810

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : N-14
Latitude : 55 27.0
Longitude : 129 30.7
Date : 82/07/11

Time (start) : 1913 PDT
Time (stop) : 1915 PDT

Depth (air) : .60 m
Depth (sounder) : 128.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.3	14.12	4.31	9.1083	6.5844	33.700
2.0	14.14	4.35	9.1909	6.6455	33.300
3.0	14.14	4.33	9.1496	6.6133	33.000
4.0	14.18	4.50	9.4594	6.8482	33.050
5.0	14.10	5.63	11.2766	8.2988	33.300
10.0	13.11	9.33	16.5246	12.9106	38.757
15.0	9.42	18.42	26.5197	23.9497	50.317
20.0	7.00	22.85	29.9441	29.1943	72.858
25.0	6.39	23.72	30.3881	30.1998	78.617
30.0	6.32	23.86	30.4934	30.3743	81.130
35.0	6.28	23.96	30.5739	30.4954	82.617
40.0	6.26	24.03	30.6428	30.5823	83.017
45.0	6.25	24.06	30.6634	30.6162	83.450
50.0	6.22	24.10	30.6806	30.6624	83.433
60.0	6.18	24.15	30.7067	30.7226	83.786
70.0	6.07	24.21	30.6755	30.7770	82.833
80.0	5.97	24.25	30.6293	30.8139	78.432
90.0	5.92	24.28	30.6152	30.8394	73.571
100.0	5.87	24.30	30.5986	30.8622	54.585
110.0	5.81	24.34	30.5877	30.8984	30.196
120.0	5.79	24.35	30.5860	30.9151	10.721
128.1	5.74	24.39	30.5872	30.9545	12.618

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : N-14
Latitude : 55 27.0
Longitude : 129 30.7
Date : 82/07/12

Time (start) : 2226 PDT
Time (stop) : 2230 PDT

Depth (air) : .60 m
Depth (sounder) : 146.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.1	13.78	3.40	7.4357	5.3415	41.150
1.0	13.78	3.27	7.2086	5.1667	41.150
2.0	13.80	3.81	8.1275	5.8750	40.900
3.0	13.96	4.98	10.1408	7.4221	40.150
4.0	13.91	5.74	11.3592	8.3999	40.150
5.0	13.71	6.76	12.9079	9.6933	40.400
10.0	11.61	12.97	20.6539	17.3272	43.622
15.0	7.76	21.63	29.1842	27.7649	63.740
20.0	6.84	23.11	30.0990	29.4949	75.550
25.0	6.50	23.55	30.3055	30.0094	77.717
30.0	6.34	23.81	30.4535	30.3118	79.250
35.0	6.29	23.95	30.5739	30.4846	81.683
40.0	6.28	24.02	30.6421	30.5656	83.260
45.0	6.25	24.06	30.6634	30.6191	83.367
50.0	6.22	24.11	30.6944	30.6752	83.275
60.0	6.14	24.18	30.6930	30.7456	82.703
70.0	5.95	24.26	30.6187	30.8265	78.617
80.0	5.89	24.29	30.5980	30.8573	64.162
90.0	5.81	24.34	30.5825	30.9048	30.954
100.0	5.76	24.38	30.5791	30.9442	4.192
110.0	5.67	24.44	30.5747	31.0125	3.235
120.0	5.57	24.53	30.5808	31.1054	13.612
130.0	5.52	24.57	30.5858	31.1540	32.408
140.1	5.48	24.60	30.5874	31.1855	21.588

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : 0-20
Latitude : 55 26.9
Longitude : 129 31.8
Date : 82/07/10

Time (start) : 2333 PDT
Time (stop) : 2336 PDT

Depth (air) : .60 m
Depth (sounder) : 137.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.3	14.34	4.50	9.5420	6.8843	28.900
2.0	14.37	4.49	9.5317	6.8715	34.425
3.0	14.38	4.48	9.5213	6.8618	35.100
4.0	14.30	4.77	9.9756	7.2282	35.100
5.0	13.81	7.11	13.5068	10.1629	34.575
10.0	10.91	14.73	22.5050	19.4681	40.819
15.0	7.25	22.45	29.6998	28.7267	71.042
20.0	6.60	23.41	30.2366	29.8453	78.025
25.0	6.39	23.71	30.3846	30.1906	81.050
30.0	6.33	23.83	30.4645	30.3330	82.040
35.0	6.29	23.92	30.5282	30.4378	82.664
40.0	6.27	23.99	30.5980	30.5302	83.192
45.0	6.26	24.04	30.6428	30.5854	83.475
50.0	6.21	24.11	30.6841	30.6744	83.700
60.0	6.15	24.18	30.7082	30.7526	83.700
70.0	5.97	24.24	30.6135	30.7992	79.562
80.0	5.87	24.30	30.5906	30.8652	74.662
90.0	5.80	24.34	30.5791	30.9051	72.125
100.0	5.75	24.38	30.5747	30.9427	70.185
110.0	5.68	24.43	30.5700	30.9970	69.069
120.0	5.59	24.50	30.5700	31.0797	70.285
128.0	5.54	24.55	30.5728	31.1271	73.394

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : 0-20
Latitude : 55 26.9
Longitude : 129 31.8
Date : 82/07/12

Time (start) : 1807 PDT
Time (stop) : 1810 PDT

Depth (air) : .20 m
Depth (sounder) : 157.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.3	14.41	5.22	10.7810	7.8379	41.100
2.0	14.39	5.33	10.9462	7.9713	40.625
3.0	14.36	5.75	11.6276	8.5158	40.650
4.0	14.11	7.07	13.6307	10.1781	41.450
5.0	13.96	7.28	13.8785	10.4169	42.750
10.0	12.12	12.05	19.7903	16.2437	41.607
15.0	8.30	20.70	28.5021	26.6708	52.492
20.0	6.68	23.31	30.1960	29.7333	75.810
25.0	6.44	23.63	30.3330	30.0947	79.192
30.0	6.35	23.78	30.4273	30.2730	81.550
35.0	6.32	23.87	30.4982	30.3801	82.550
40.0	6.29	23.95	30.5677	30.4772	83.380
45.0	6.28	24.02	30.6421	30.5635	83.740
50.0	6.28	24.04	30.6710	30.5965	83.930
60.0	6.23	24.12	30.7244	30.6930	84.150
70.0	6.17	24.18	30.7251	30.7492	84.332
80.0	6.13	24.22	30.7419	30.7973	83.805
90.0	6.02	24.25	30.6800	30.8215	83.036
100.0	5.87	24.30	30.5929	30.8601	79.079
110.0	5.82	24.32	30.5843	30.8863	69.491
120.0	5.80	24.34	30.5843	30.9040	62.318
130.0	5.74	24.38	30.5757	30.9401	67.837
140.0	5.71	24.40	30.5774	30.9687	69.133
151.3	5.65	24.46	30.5853	31.0282	62.361

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : Q-20
Latitude : 55 26.7
Longitude : 129 31.8
Date : 82/07/08

Time (start) : 2319 PDT
Time (stop) : 2326 PDT

Depth (air) : 0.00 m
Depth (sounder) : 288.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
6.7	14.21	7.25	13.9817	10.4331	35.250
10.0	10.83	15.38	23.2577	20.2913	36.560
15.0	6.97	22.87	29.9372	29.2161	71.183
20.0	6.56	23.45	30.2415	29.8879	79.930
25.0	6.40	23.69	30.3695	30.1643	81.060
30.0	6.33	23.79	30.4191	30.2800	82.000
35.0	6.29	23.89	30.4975	30.4024	82.550
40.0	6.29	23.95	30.5670	30.4777	84.200
45.0	6.27	24.00	30.6132	30.5444	84.070
50.0	6.26	24.05	30.6586	30.6020	84.090
60.0	6.23	24.11	30.7082	30.6773	84.289
70.0	6.10	24.19	30.6762	30.7585	84.291
80.0	5.95	24.24	30.6049	30.8039	79.390
90.0	5.85	24.30	30.5711	30.8560	72.591
100.0	5.75	24.36	30.5561	30.9223	64.436
110.0	5.68	24.41	30.5448	30.9736	73.932
120.0	5.61	24.47	30.5533	31.0431	79.583
130.0	5.55	24.53	30.5655	31.1101	74.114
140.0	5.51	24.57	30.5688	31.1460	78.579
150.0	5.47	24.60	30.5786	31.1846	82.273
160.0	5.44	24.62	30.5805	31.2080	80.959
170.0	5.43	24.64	30.5860	31.2248	74.800
180.0	5.41	24.65	30.5877	31.2357	74.604
190.0	5.41	24.65	30.5955	31.2439	74.245
200.0	5.39	24.66	30.5980	31.2547	74.878
210.0	5.38	24.67	30.6008	31.2617	72.910
220.0	5.38	24.67	30.6049	31.2656	71.239
230.0	5.37	24.68	30.6118	31.2763	68.311
240.0	5.38	24.68	30.6132	31.2683	62.820
250.0	5.37	24.68	30.6210	31.2754	57.783
260.0	5.37	24.68	30.6235	31.2741	54.585
270.0	5.36	24.69	30.6271	31.2834	70.922
280.0	5.36	24.69	30.6309	31.2827	74.750
286.0	5.36	24.69	30.6359	31.2851	73.087

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : Q-20
Latitude : 55 26.7
Longitude : 129 31.8
Date : 82/07/10

Time (start) : 2302 PDT
Time (stop) : 2307 PDT

Depth (air) : .60 m
Depth (sounder) : 250.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
3.2	14.18	5.21	10.6364	7.7707	34.600
4.0	14.09	5.77	11.5037	8.4760	35.050
5.0	14.07	5.97	11.8341	8.7432	35.550
10.0	12.60	10.74	18.2390	14.6311	42.500
15.0	8.03	21.29	28.9942	27.3810	54.912
20.0	6.69	23.31	30.1960	29.7271	77.310
25.0	6.43	23.66	30.3623	30.1373	80.700
30.0	6.33	23.81	30.4438	30.3071	81.920
35.0	6.28	23.91	30.5140	30.4330	82.620
40.0	6.27	24.00	30.6049	30.5365	82.850
45.0	6.25	24.05	30.6462	30.5967	83.310
50.0	6.21	24.12	30.6875	30.6796	83.825
60.0	6.17	24.17	30.7271	30.7490	83.867
70.0	6.02	24.25	30.6669	30.8181	82.522
80.0	5.89	24.28	30.5888	30.8445	76.206
90.0	5.80	24.34	30.5760	30.9039	72.940
100.0	5.75	24.37	30.5677	30.9356	69.740
110.0	5.68	24.43	30.5636	30.9967	70.950
120.0	5.59	24.50	30.5657	31.0737	74.105
130.0	5.53	24.55	30.5728	31.1280	75.328
140.0	5.47	24.61	30.5801	31.1918	78.760
150.0	5.45	24.63	30.5863	31.2139	79.625
160.0	5.44	24.63	30.5884	31.2231	77.225
170.0	5.42	24.65	30.5966	31.2427	78.595
180.0	5.41	24.66	30.6012	31.2562	80.773
190.0	5.40	24.67	30.6090	31.2620	81.485
200.0	5.40	24.67	30.6090	31.2574	79.795
210.0	5.39	24.67	30.6124	31.2670	74.227
220.0	5.38	24.68	30.6124	31.2727	71.395
230.0	5.37	24.69	30.6180	31.2803	71.509
240.0	5.37	24.69	30.6256	31.2848	69.950
245.0	5.37	24.69	30.6256	31.2863	68.700

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : Q-20
Latitude : 55 26.7
Longitude : 129 31.8
Date : 82/07/11

Time (start) : 2001 PDT
Time (stop) : 2007 PDT

Depth (air) : .60 m
Depth (sounder) : 287.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.3	13.95	6.05	11.8961	8.8216	34.700
1.0	13.95	6.10	11.9787	8.8878	35.800
2.0	13.91	6.33	12.3297	9.1780	36.150
3.0	13.84	7.03	13.4035	10.0643	37.200
4.0	13.44	8.32	15.2207	11.6697	37.650
5.0	13.16	8.87	15.8918	12.3211	38.800
10.0	12.04	12.01	19.7873	16.1775	44.993
15.0	8.38	20.64	28.5110	26.6099	60.070
20.0	6.90	23.03	30.0628	29.4065	76.250
25.0	6.48	23.57	30.3117	30.0312	78.580
30.0	6.35	23.78	30.4242	30.2702	79.887
35.0	6.29	23.90	30.5099	30.4189	82.160
40.0	6.26	23.99	30.5894	30.5275	82.475
45.0	6.26	24.06	30.6710	30.6177	83.340
50.0	6.24	24.11	30.7123	30.6737	83.810
60.0	6.20	24.16	30.7326	30.7344	84.132
70.0	6.13	24.22	30.7403	30.8003	83.739
80.0	6.02	24.27	30.6999	30.8440	83.515
90.0	5.87	24.30	30.5980	30.8662	78.383
100.0	5.81	24.34	30.5822	30.9027	73.725
110.0	5.77	24.36	30.5751	30.9276	72.167
120.0	5.72	24.40	30.5781	30.9708	72.695
130.0	5.66	24.45	30.5781	31.0170	73.000
140.0	5.58	24.51	30.5781	31.0848	74.810
150.0	5.53	24.56	30.5884	31.1380	77.410
160.0	5.49	24.59	30.5925	31.1778	78.225
170.0	5.44	24.63	30.5987	31.2216	77.540
180.0	5.42	24.65	30.6008	31.2393	76.805
190.0	5.41	24.66	30.6087	31.2540	77.041
200.0	5.41	24.67	30.6132	31.2587	76.595
210.0	5.40	24.67	30.6162	31.2652	76.873
220.0	5.39	24.68	30.6218	31.2728	78.055
230.0	5.38	24.69	30.6256	31.2813	75.714
240.0	5.38	24.69	30.6274	31.2848	65.123
250.0	5.37	24.69	30.6312	31.2858	48.845
260.0	5.38	24.69	30.6324	31.2800	43.133
270.0	5.38	24.69	30.6425	31.2799	41.841
278.4	5.37	24.70	30.6483	31.2928	48.495

EPS MARINE CTD OCEANOGRAPHY

Survey	: ALICE ARM	Time (start)	: 1828 PDT
Station	: Q-20	Time (stop)	: 1834 PDT
Latitude	: 55 26.7		
Longitude	: 129 31.8	Depth (air)	: .30 m
Date	: 82/07/12	Depth (sounder)	: 300.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.2	14.54	4.14	9.0257	6.4517	39.000
1.0	14.55	4.14	9.0257	6.4488	39.150
2.0	14.48	4.19	9.0877	6.5082	38.350
3.0	14.32	5.61	11.3798	8.3277	38.100
4.0	14.09	6.30	12.3710	9.1686	38.050
5.0	14.07	6.95	13.4242	10.0204	41.400
10.0	12.35	11.44	19.0977	15.4996	42.562
15.0	9.08	19.09	27.1047	24.7408	46.333
20.0	7.17	22.60	29.8099	28.9066	72.350
25.0	6.69	23.30	30.1919	29.7197	78.540
30.0	6.46	23.62	30.3433	30.0854	80.450
35.0	6.33	23.83	30.4707	30.3365	81.692
40.0	6.29	23.94	30.5595	30.4650	83.390
45.0	6.28	23.99	30.6152	30.5366	83.875
50.0	6.27	24.03	30.6531	30.5840	83.833
60.0	6.26	24.11	30.7302	30.6746	84.253
70.0	6.18	24.18	30.7419	30.7530	84.314
80.0	6.12	24.21	30.7219	30.7809	83.812
90.0	6.09	24.24	30.7340	30.8220	83.742
100.0	5.98	24.28	30.6852	30.8556	83.422
110.0	5.84	24.32	30.5946	30.8798	77.519
120.0	5.80	24.34	30.5868	30.9035	68.612
130.0	5.76	24.37	30.5797	30.9291	64.722
140.0	5.71	24.41	30.5817	30.9743	69.756
150.0	5.65	24.45	30.5774	31.0193	71.272
160.0	5.61	24.49	30.5843	31.0604	74.331
170.0	5.54	24.55	30.5911	31.1263	76.222
180.0	5.50	24.58	30.5980	31.1678	76.622
190.0	5.48	24.60	30.6026	31.1848	71.561
200.0	5.48	24.60	30.6118	31.1848	22.672
210.0	5.47	24.61	30.6118	31.1968	8.050
220.0	5.44	24.64	30.6187	31.2276	30.039
230.0	5.43	24.64	30.6210	31.2348	28.433
240.0	5.42	24.65	30.6256	31.2389	19.965
250.0	5.42	24.65	30.6324	31.2438	12.939
260.0	5.42	24.65	30.6338	31.2439	13.280
270.4	5.42	24.64	30.6293	31.2288	5.541

EPS MARINE CTD OCEANOGRAPHY

Survey	: ALICE ARM	Time (start)	: 2001 PDT
Station	: Q-20	Time (stop)	: 2005 PDT
Latitude	: 55 26.7		
Longitude	: 129 31.8	Depth (air)	: .30 m
Date	: 82/07/12	Depth (sounder)	: 292.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.2	14.50	4.37	9.3974	6.7442	40.300
2.0	14.46	4.50	9.6039	6.9102	39.750
3.0	14.43	4.83	10.1408	7.3338	39.900
4.0	14.32	5.45	11.1114	8.1158	40.200
5.0	14.11	6.56	12.8047	9.5122	40.850
10.0	12.46	11.23	18.9318	15.2473	42.493
15.0	8.35	20.66	28.4780	26.6221	50.010
20.0	6.97	22.92	30.0009	29.2750	73.712
25.0	6.51	23.57	30.3365	30.0367	79.110
30.0	6.33	23.80	30.4273	30.2921	80.530
35.0	6.29	23.90	30.5171	30.4223	82.287
40.0	6.30	23.96	30.5966	30.4965	83.490
45.0	6.28	24.04	30.6669	30.5972	83.770
50.0	6.26	24.09	30.7040	30.6487	83.930
60.0	6.22	24.15	30.7391	30.7232	84.221
70.0	6.13	24.20	30.7196	30.7758	83.967
80.0	6.07	24.25	30.7247	30.8279	83.625
90.0	5.94	24.29	30.6483	30.8604	82.605
100.0	5.82	24.33	30.5843	30.8921	74.340
110.0	5.78	24.36	30.5822	30.9212	66.425
120.0	5.72	24.39	30.5719	30.9607	69.420
130.0	5.67	24.44	30.5760	31.0067	72.690
140.0	5.61	24.48	30.5739	31.0509	72.790
150.0	5.56	24.53	30.5824	31.1032	76.541
160.0	5.49	24.59	30.5899	31.1699	77.791
170.0	5.45	24.62	30.5966	31.2110	80.530
180.0	5.43	24.64	30.6012	31.2337	78.641
190.0	5.42	24.65	30.6030	31.2401	77.909
200.0	5.41	24.66	30.6105	31.2529	78.268
210.0	5.41	24.66	30.6143	31.2570	77.382
220.0	5.40	24.67	30.6187	31.2640	77.967
230.0	5.40	24.67	30.6218	31.2634	58.745
240.0	5.39	24.68	30.6274	31.2683	39.041
250.0	5.39	24.68	30.6307	31.2706	29.400
260.0	5.39	24.68	30.6342	31.2725	27.154
270.0	5.37	24.69	30.6359	31.2850	40.250
280.0	5.37	24.69	30.6393	31.2856	44.250
286.9	5.37	24.69	30.6462	31.2900	41.100

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : Q-20
Latitude : 55 26.7
Longitude : 129 31.8
Date : 82/07/12

Time (start) : 2121 PDT
Time (stop) : 2126 PDT

Depth (air) : .30 m
Depth (sounder) : 275.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.4	14.48	4.95	10.3680	7.5009	42.400
2.0	14.49	4.95	10.3680	7.4991	41.975
3.0	14.50	5.08	10.5951	7.6745	41.200
4.0	14.38	5.95	11.9580	8.7734	42.000
5.0	13.93	7.02	13.4448	10.0742	41.850
10.0	12.42	11.34	18.9239	15.3723	42.250
15.0	8.21	20.89	28.6721	26.8968	55.580
20.0	6.87	23.07	30.0928	29.4600	74.470
25.0	6.43	23.67	30.3736	30.1435	79.240
30.0	6.31	23.87	30.4934	30.3838	81.130
35.0	6.30	23.94	30.5584	30.4637	82.925
40.0	6.29	24.00	30.6338	30.5503	83.150
45.0	6.28	24.04	30.6751	30.5999	83.330
50.0	6.25	24.12	30.7329	30.6871	83.800
60.0	6.18	24.16	30.7236	30.7359	84.262
70.0	6.06	24.24	30.6978	30.8108	83.240
80.0	5.97	24.27	30.6565	30.8449	82.110
90.0	5.84	24.32	30.5884	30.8802	76.130
100.0	5.79	24.36	30.5822	30.9210	64.235
110.0	5.74	24.38	30.5767	30.9508	64.164
120.0	5.68	24.43	30.5739	31.0006	66.705
130.0	5.59	24.50	30.5760	31.0791	74.005
140.0	5.55	24.54	30.5801	31.1190	76.935
150.0	5.50	24.59	30.5880	31.1698	72.045
160.0	5.45	24.62	30.5936	31.2120	75.300
170.0	5.44	24.64	30.5994	31.2308	79.437
180.0	5.42	24.65	30.6030	31.2418	79.614
190.0	5.41	24.66	30.6068	31.2548	76.041
200.0	5.40	24.67	30.6105	31.2619	72.291
210.0	5.40	24.67	30.6105	31.2617	62.314
220.0	5.39	24.67	30.6180	31.2671	54.482
230.0	5.39	24.68	30.6218	31.2697	41.045
240.0	5.39	24.68	30.6273	31.2728	35.471
250.0	5.39	24.68	30.6290	31.2698	34.092
258.5	5.38	24.68	30.6307	31.2755	36.631

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : Q-20
Latitude : 55 26.7
Longitude : 129 31.8
Date : 82/07/12

Time (start) : 2136 PDT
Time (stop) : 2140 PDT

Depth (air) : .30 m
Depth (sounder) : 275.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.6	14.54	4.81	10.1615	7.3299	14.800
2.0	14.54	4.81	10.1615	7.3298	39.050
3.0	14.55	4.84	10.2131	7.3682	41.675
4.0	14.57	5.10	10.6571	7.7087	41.800
5.0	14.41	6.02	12.1026	8.8798	42.350
10.0	12.49	11.19	18.7106	15.2015	42.050
15.0	8.17	21.04	28.8221	27.0794	57.917
20.0	6.80	23.21	30.1781	29.6175	73.833
25.0	6.40	23.71	30.3915	30.1905	79.100
30.0	6.30	23.88	30.4948	30.3919	81.383
35.0	6.30	23.93	30.5567	30.4580	82.850
40.0	6.29	24.00	30.6256	30.5423	83.283
45.0	6.28	24.05	30.6772	30.6021	83.312
50.0	6.25	24.12	30.7288	30.6888	83.950
60.0	6.15	24.18	30.7107	30.7518	84.006
70.0	6.04	24.24	30.6841	30.8139	82.725
80.0	5.93	24.28	30.6285	30.8467	81.229
90.0	5.83	24.32	30.5808	30.8826	71.917
100.0	5.78	24.35	30.5725	30.9173	62.571
110.0	5.74	24.38	30.5725	30.9452	64.457
120.0	5.68	24.43	30.5705	30.9936	66.183
130.0	5.58	24.51	30.5725	31.0819	74.086
140.0	5.53	24.55	30.5784	31.1310	75.857
150.0	5.48	24.60	30.5843	31.1848	72.971
160.0	5.45	24.63	30.5902	31.2128	77.421
170.0	5.43	24.64	30.5961	31.2314	78.421
180.0	5.41	24.66	30.6020	31.2499	79.821
190.0	5.41	24.66	30.6020	31.2477	64.793
200.0	5.40	24.67	30.6079	31.2592	64.757
210.0	5.40	24.67	30.6152	31.2621	55.156
220.0	5.39	24.67	30.6167	31.2643	50.800
230.0	5.39	24.68	30.6197	31.2703	44.457
240.0	5.38	24.68	30.6256	31.2743	41.037
249.6	5.39	24.68	30.6338	31.2770	34.410

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : Q-20
Latitude : 55 26.7
Longitude : 129 31.8
Date : 82/07/12

Time (start) : 2151 PDT
Time (stop) : 2155 PDT

Depth (air) : .60 m
Depth (sounder) : 272.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
.5	13.25	1.25	3.5329	2.4483	56.550
1.0	14.30	4.67	9.8104	7.0996	24.050
2.0	14.46	5.06	10.5332	7.6332	10.850
3.0	14.04	6.87	13.2590	9.8963	33.350
4.0	13.80	7.67	14.4154	10.8998	37.300
5.0	13.64	8.00	14.8284	11.2857	44.400
10.0	12.33	11.49	19.1571	15.5519	45.881
15.0	8.64	19.98	27.9135	25.8107	54.925
20.0	6.91	23.02	30.0611	29.3968	73.500
25.0	6.38	23.73	30.3943	30.2104	79.270
30.0	6.30	23.89	30.5120	30.4108	81.567
35.0	6.30	23.96	30.5843	30.4908	82.858
40.0	6.28	24.01	30.6324	30.5602	83.583
45.0	6.25	24.08	30.6834	30.6378	83.680
50.0	6.24	24.12	30.7219	30.6895	84.267
60.0	6.14	24.18	30.7067	30.7550	83.925
70.0	6.02	24.24	30.6686	30.8140	82.387
80.0	5.93	24.28	30.6256	30.8467	80.932
90.0	5.82	24.33	30.5763	30.8923	67.862
100.0	5.76	24.36	30.5705	30.9275	65.412
110.0	5.71	24.41	30.5705	30.9721	68.062
120.0	5.63	24.46	30.5670	31.0350	71.342
130.0	5.56	24.53	30.5700	31.1030	77.792
140.0	5.51	24.58	30.5808	31.1595	76.804
150.0	5.46	24.61	30.5858	31.1982	71.085
160.0	5.44	24.63	30.5874	31.2195	77.612
170.0	5.43	24.64	30.5922	31.2291	79.469
180.0	5.41	24.66	30.6001	31.2474	80.550
190.0	5.40	24.67	30.6033	31.2578	76.950
200.0	5.41	24.67	30.6108	31.2576	79.439
210.0	5.39	24.67	30.6108	31.2647	57.704
220.0	5.39	24.67	30.6160	31.2668	61.754
230.0	5.39	24.68	30.6167	31.2680	63.832
240.0	5.38	24.68	30.6256	31.2745	64.564
250.0	5.37	24.69	30.6269	31.2843	57.207
260.0	5.36	24.69	30.6300	31.2889	53.511
268.5	5.37	24.69	30.6359	31.2885	46.245

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : N-8
Latitude : 55 27.0
Longitude : 129 29.7
Date : 82/07/12

Time (start) : 2311 PDT
Time (stop) : 2315 PDT

Depth (air) : .60 m
Depth (sounder) : 120.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
3.0	13.82	5.26	10.5332	7.7608	40.950
4.0	13.95	6.77	13.0525	9.7520	35.300
5.0	13.70	7.63	14.2811	10.8197	38.925
10.0	11.76	12.83	20.6516	17.1820	46.567
15.0	7.59	21.92	29.3797	28.1090	62.208
20.0	6.88	22.98	29.9854	29.3370	75.064
25.0	6.45	23.62	30.3399	30.0918	77.492
30.0	6.32	23.82	30.4397	30.3175	79.386
35.0	6.28	23.92	30.5282	30.4422	81.429
40.0	6.23	23.99	30.5670	30.5283	82.392
45.0	6.24	24.06	30.6492	30.6124	82.457
50.0	6.21	24.10	30.6757	30.6624	82.979
60.0	6.13	24.17	30.6785	30.7384	82.650
70.0	5.97	24.25	30.6211	30.8094	72.221
80.0	5.89	24.30	30.6020	30.8613	59.464
90.0	5.80	24.35	30.5828	30.9099	69.011
100.0	5.71	24.41	30.5680	30.9731	56.289
110.0	5.60	24.49	30.5669	31.0681	73.516
116.5	5.57	24.53	30.5739	31.1035	73.942

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : S-20
Latitude : 55 27.2
Longitude : 129 33.9
Date : 82/07/10

Time (start) : 2246 PDT
Time (stop) : 2250 PDT

Depth (air) : .50 m
Depth (sounder) : 256.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
2.2	14.27	3.47	7.7661	5.5273	32.850
3.0	14.23	3.77	8.2617	5.9123	32.950
4.0	14.18	4.43	9.3355	6.7517	32.900
5.0	14.04	5.82	11.5657	8.5371	33.150
10.0	11.74	12.86	20.5255	17.2053	39.200
15.0	7.28	22.44	29.7170	28.7228	69.600
20.0	6.58	23.45	30.2607	29.8921	79.283
25.0	6.45	23.65	30.3743	30.1294	81.283
30.0	6.35	23.81	30.4535	30.3065	82.092
35.0	6.30	23.87	30.4879	30.3847	82.508
40.0	6.26	23.95	30.5464	30.4815	82.175
45.0	6.26	24.02	30.6315	30.5676	83.193
50.0	6.23	24.10	30.7013	30.6691	83.808
60.0	6.17	24.17	30.7109	30.7384	84.070
70.0	6.02	24.24	30.6591	30.8071	82.225
80.0	5.85	24.31	30.5774	30.8663	76.056
90.0	5.76	24.36	30.5636	30.9262	70.928
100.0	5.69	24.41	30.5544	30.9769	74.267
110.0	5.63	24.46	30.5590	31.0322	76.339
120.0	5.58	24.51	30.5659	31.0811	76.167
130.0	5.52	24.56	30.5739	31.1397	76.250
140.0	5.47	24.60	30.5774	31.1837	77.172
150.0	5.46	24.62	30.5843	31.2047	76.390
160.0	5.42	24.65	30.5911	31.2376	75.194
170.0	5.42	24.65	30.5957	31.2439	75.622
180.0	5.41	24.66	30.6008	31.2510	79.800
190.0	5.40	24.67	30.6090	31.2621	81.015
200.0	5.40	24.67	30.6111	31.2613	81.295
210.0	5.39	24.68	30.6173	31.2735	80.855
220.0	5.39	24.68	30.6194	31.2728	79.680
230.0	5.38	24.68	30.6214	31.2754	78.480
240.0	5.37	24.69	30.6194	31.2785	76.900
248.1	5.37	24.69	30.6279	31.2857	75.906

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : S-20
Latitude : 55 26.5
Longitude : 129 31.8
Date : 82/07/12

Time (start) : 2206 PDT
Time (stop) : 2211 PDT

Depth (air) : .60 m
Depth (sounder) : 265.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.3	14.39	5.02	10.4299	7.5665	40.450
2.0	14.27	5.69	11.4831	8.4210	40.000
3.0	14.05	6.50	12.6808	9.4259	40.200
4.0	13.64	8.01	14.8490	11.3029	41.250
5.0	13.35	8.44	15.3446	11.8002	41.150
10.0	11.81	12.87	20.7106	17.2344	43.386
15.0	7.70	21.77	29.2971	27.9386	61.400
20.0	6.62	23.43	30.2745	29.8770	77.220
25.0	6.39	23.72	30.3984	30.2053	79.580
30.0	6.30	23.86	30.4686	30.3630	80.970
35.0	6.28	23.93	30.5430	30.4587	82.430
40.0	6.29	24.00	30.6297	30.5489	83.580
45.0	6.26	24.05	30.6634	30.6056	83.775
50.0	6.25	24.11	30.7247	30.6810	84.270
60.0	6.16	24.19	30.7304	30.7613	84.019
70.0	6.08	24.25	30.7288	30.8328	83.264
80.0	5.90	24.30	30.6194	30.8653	80.180
90.0	5.81	24.33	30.5786	30.8967	70.773
100.0	5.75	24.37	30.5692	30.9395	71.582
110.0	5.70	24.41	30.5692	30.9811	71.655
120.0	5.61	24.48	30.5636	31.0509	77.905
130.0	5.52	24.56	30.5730	31.1409	79.086
140.0	5.50	24.58	30.5786	31.1607	79.005
150.0	5.46	24.61	30.5894	31.2018	79.442
160.0	5.42	24.65	30.5918	31.2384	79.064
170.0	5.41	24.66	30.5980	31.2491	80.867
180.0	5.41	24.66	30.6049	31.2576	82.087
190.0	5.40	24.67	30.6118	31.2689	82.729
200.0	5.40	24.68	30.6170	31.2714	82.875
210.0	5.39	24.68	30.6187	31.2743	82.746
220.0	5.39	24.68	30.6221	31.2777	81.350
230.0	5.38	24.69	30.6240	31.2853	79.173
240.0	5.38	24.69	30.6273	31.2851	78.412
250.0	5.37	24.69	30.6300	31.2877	78.200
258.2	5.36	24.70	30.6324	31.2934	77.761

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : Q-26
Latitude : 55 26.7
Longitude : 129 32.9
Date : 82/07/10

Time (start) : 1245 PDT
Time (stop) : 1248 PDT

Depth (air) : 0.00 m
Depth (sounder) : 292.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.5	13.96	2.99	6.8162	4.8435	33.650
2.0	14.00	3.54	7.7661	5.5656	33.250
3.0	14.16	4.04	8.6747	6.2420	31.950
4.0	14.38	5.10	10.5538	7.6668	31.450
5.0	14.23	6.57	12.8873	9.5478	33.150
10.0	10.34	16.36	24.1887	21.4625	43.736
15.0	6.90	22.97	30.0009	29.3337	75.850
20.0	6.55	23.51	30.2993	29.9639	79.960
25.0	6.37	23.78	30.4449	30.2757	82.587
30.0	6.29	23.90	30.5017	30.4126	83.320
35.0	6.30	23.95	30.5884	30.4897	84.050
40.0	6.33	24.02	30.6875	30.5740	84.280
45.0	6.28	24.05	30.6823	30.6079	84.250
50.0	6.25	24.09	30.6916	30.6482	84.020
60.0	6.22	24.14	30.7391	30.7167	84.158
70.0	6.16	24.21	30.7609	30.7910	83.917
80.0	6.08	24.24	30.7267	30.8222	83.305
90.0	5.88	24.30	30.5946	30.8578	80.540
100.0	5.79	24.33	30.5512	30.8848	70.660
110.0	5.73	24.37	30.5450	30.9255	74.865
120.0	5.66	24.42	30.5409	30.9785	81.525
130.0	5.62	24.46	30.5492	31.0226	81.260
140.0	5.56	24.51	30.5574	31.0850	83.110
150.0	5.51	24.56	30.5657	31.1376	80.450
160.0	5.46	24.60	30.5719	31.1831	80.335
170.0	5.44	24.62	30.5801	31.2078	81.820
180.0	5.42	24.64	30.5861	31.2246	82.082
190.0	5.42	24.64	30.5925	31.2272	81.895
200.0	5.40	24.66	30.5974	31.2460	83.268
210.0	5.40	24.66	30.6012	31.2500	83.700
220.0	5.40	24.66	30.6068	31.2516	83.218
230.0	5.38	24.67	30.6068	31.2605	81.386
240.0	5.37	24.68	30.6105	31.2691	77.973
250.0	5.37	24.68	30.6101	31.2695	75.304
260.0	5.37	24.68	30.6123	31.2654	73.000
270.0	5.36	24.68	30.6178	31.2737	70.917
278.2	5.36	24.68	30.6171	31.2721	68.694

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : L-32
Latitude : 55 27.2
Longitude : 129 33.9
Date : 82/07/10

Time (start) : 2149 PDT
Time (stop) : 2151 PDT

Depth (air) : .60 m
Depth (sounder) : 91.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
.9	14.43	5.31	10.9255	7.9477	35.700
1.0	14.45	5.31	10.9462	7.9603	35.800
2.0	14.43	5.62	11.4418	8.3537	34.850
3.0	14.30	6.06	12.1026	8.9045	35.000
4.0	14.29	6.21	12.3297	9.0893	35.800
5.0	14.21	6.49	12.7531	9.4445	35.400
10.0	11.75	12.97	20.8463	17.3614	44.157
15.0	7.63	21.87	29.3281	28.0499	66.533
20.0	6.65	23.36	30.2208	29.7875	78.680
25.0	6.39	23.73	30.4067	30.2207	81.090
30.0	6.30	23.89	30.5120	30.4107	82.950
35.0	6.30	23.97	30.5966	30.5048	83.780
40.0	6.31	24.02	30.6710	30.5686	84.270
45.0	6.31	24.06	30.7185	30.6261	84.242
50.0	6.23	24.12	30.7082	30.6823	84.190
60.0	6.17	24.18	30.7332	30.7546	84.132
70.0	6.10	24.25	30.7495	30.8322	83.809
80.0	5.91	24.30	30.6281	30.8654	82.372
85.7	5.82	24.33	30.5791	30.8921	79.250

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : L-32
Latitude : 55 27.2
Longitude : 129 33.9
Date : 82/07/12

Time (start) : 1630 PDT
Time (stop) : 1635 PDT

Depth (air) : .50 m
Depth (sounder) : 183.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.4	14.21	6.09	12.1026	8.9252	45.600
2.0	14.20	6.10	12.1026	8.9293	45.600
3.0	14.20	6.04	12.0062	8.8523	44.800
4.0	14.15	6.48	12.7014	9.4201	45.150
5.0	13.91	7.49	14.1882	10.6839	45.950
10.0	11.92	12.39	20.1298	16.6408	43.209
15.0	7.63	21.84	29.3010	28.0061	63.871
20.0	6.71	23.24	30.1429	29.6481	77.612
25.0	6.54	23.51	30.2952	29.9648	79.529
30.0	6.41	23.73	30.4320	30.2232	81.525
35.0	6.38	23.86	30.5518	30.3815	83.143
40.0	6.36	23.93	30.6167	30.4712	83.750
45.0	6.29	23.99	30.6230	30.5342	83.850
50.0	6.30	24.03	30.6757	30.5798	84.136
60.0	6.29	24.11	30.7592	30.6821	83.934
70.0	6.21	24.19	30.7856	30.7768	83.675
80.0	6.11	24.25	30.7522	30.8284	83.070
90.0	5.98	24.28	30.6785	30.8581	82.459
100.0	5.87	24.32	30.6204	30.8907	81.000
110.0	5.78	24.36	30.5830	30.9229	77.291
120.0	5.71	24.41	30.5714	30.9718	78.772
130.0	5.64	24.45	30.5697	31.0251	82.044
140.0	5.61	24.49	30.5791	31.0607	82.219
150.0	5.57	24.52	30.5867	31.0990	81.662
160.0	5.51	24.57	30.5928	31.1556	81.753
170.0	5.48	24.61	30.5988	31.1929	80.759
177.4	5.47	24.61	30.6049	31.1971	80.989

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : 0-32
Latitude : 55 26.9
Longitude : 129 33.9
Date : 82/07/10

Time (start) : 2201 PDT
Time (stop) : 2208 PDT

Depth (air) : .50 m
Depth (sounder) : 366.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.4	14.43	5.14	10.6571	7.7372	37.200
2.0	14.42	5.25	10.8223	7.8687	37.125
3.0	14.43	5.26	10.8429	7.8827	36.900
4.0	14.34	5.99	12.0097	8.8235	35.350
5.0	14.16	7.20	13.8785	10.3641	33.350
10.0	11.50	13.59	21.3239	18.1080	44.433
15.0	7.10	22.73	29.8994	29.0641	68.333
20.0	6.54	23.53	30.3192	29.9874	80.425
25.0	6.39	23.78	30.4638	30.2803	82.617
30.0	6.32	23.89	30.5257	30.4126	83.533
35.0	6.29	23.97	30.5946	30.5075	84.050
40.0	6.31	24.02	30.6703	30.5726	84.275
45.0	6.29	24.05	30.6944	30.6131	84.400
50.0	6.26	24.12	30.7406	30.6927	84.279
60.0	6.22	24.18	30.7811	30.7685	84.167
70.0	6.16	24.23	30.7860	30.8176	83.850
80.0	5.94	24.28	30.6342	30.8460	83.462
90.0	5.82	24.34	30.5874	30.8998	81.981
100.0	5.74	24.37	30.5557	30.9314	79.631
110.0	5.70	24.40	30.5509	30.9605	82.069
120.0	5.64	24.45	30.5573	31.0199	83.785
130.0	5.58	24.50	30.5668	31.0754	83.877
140.0	5.53	24.55	30.5763	31.1311	83.454
150.0	5.49	24.59	30.5828	31.1739	80.254
160.0	5.45	24.63	30.5902	31.2129	81.432
170.0	5.43	24.64	30.5938	31.2258	81.988
180.0	5.42	24.65	30.6005	31.2425	81.986
190.0	5.41	24.66	30.6064	31.2551	82.904
200.0	5.41	24.67	30.6132	31.2581	84.213
210.0	5.40	24.67	30.6152	31.2637	84.857
220.0	5.39	24.68	30.6197	31.2736	84.432
230.0	5.38	24.68	30.6152	31.2699	84.068
240.0	5.38	24.68	30.6256	31.2777	83.723
250.0	5.38	24.68	30.6256	31.2763	82.727
260.0	5.37	24.69	30.6269	31.2798	80.583
270.0	5.37	24.69	30.6307	31.2814	78.528
280.0	5.36	24.67	30.6132	31.2614	76.983
290.0	5.36	24.69	30.6398	31.2874	72.644
297.9	5.37	24.68	30.6410	31.2761	72.200

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : O-32
Latitude : 55 26.9
Longitude : 129 33.9
Date : 82/07/12

Time (start) : 1613 PDT
Time (stop) : 1618 PDT

Depth (air) : .60 m
Depth (sounder) : 300.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.5	14.25	5.58	11.2766	8.2615	38.700
2.0	14.24	5.88	11.7722	8.6563	38.350
3.0	14.18	6.12	12.1232	8.9496	40.200
4.0	14.16	6.12	12.1232	8.9537	41.550
5.0	14.05	7.18	13.7752	10.3092	41.950
10.0	11.70	13.35	21.2324	17.8360	39.369
15.0	7.46	22.19	29.5827	28.4287	61.475
20.0	6.71	23.26	30.1541	29.6672	77.225
25.0	6.50	23.62	30.3846	30.0986	80.833
30.0	6.43	23.75	30.4707	30.2513	82.483
35.0	6.38	23.85	30.5395	30.3696	83.058
40.0	6.36	23.92	30.6015	30.4541	83.525
45.0	6.35	23.99	30.6841	30.5480	84.067
50.0	6.31	24.07	30.7288	30.6326	84.100
60.0	6.31	24.12	30.8024	30.7065	84.122
70.0	6.23	24.21	30.8269	30.8041	83.996
80.0	6.14	24.25	30.7925	30.8400	83.737
90.0	5.98	24.29	30.6875	30.8694	83.204
100.0	5.85	24.33	30.6097	30.8959	82.527
110.0	5.76	24.37	30.5779	30.9313	81.388
120.0	5.74	24.37	30.5657	30.9323	80.870
130.0	5.70	24.41	30.5688	30.9725	82.581
140.0	5.65	24.45	30.5728	31.0171	82.833
150.0	5.59	24.50	30.5843	31.0801	83.228
160.0	5.54	24.56	30.5957	31.1379	82.006
170.0	5.50	24.59	30.6003	31.1716	81.956
180.0	5.46	24.63	30.6090	31.2169	83.510
190.0	5.43	24.65	30.6141	31.2383	82.433
200.0	5.43	24.65	30.6210	31.2452	81.656
210.0	5.41	24.67	30.6256	31.2647	82.690
220.0	5.41	24.67	30.6324	31.2634	83.772
230.0	5.41	24.68	30.6359	31.2701	83.750
240.0	5.41	24.67	30.6379	31.2693	82.355
250.0	5.39	24.69	30.6421	31.2824	80.505
260.0	5.39	24.69	30.6462	31.2857	82.135
270.0	5.39	24.69	30.6483	31.2817	78.975
280.0	5.38	24.69	30.6503	31.2894	75.655
290.0	5.38	24.69	30.6537	31.2892	73.891
297.6	5.37	24.70	30.6586	31.2955	69.650

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : M-40
Latitude : 55 27.1
Longitude : 129 35.3
Date : 82/07/10

Time (start) : 2129 PDT
Time (stop) : 2134 PDT

Depth (air) : .60 m
Depth (sounder) : 384.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
2.3	14.61	5.22	10.8842	7.8790	35.550
3.0	14.59	5.25	10.9255	7.9148	35.550
4.0	14.57	5.46	11.2559	8.1770	35.500
5.0	14.25	6.86	13.3829	9.9410	35.650
10.0	12.09	12.16	19.9348	16.3800	43.621
15.0	7.92	21.35	28.9357	27.4296	64.800
20.0	6.60	23.43	30.2580	29.8713	79.110
25.0	6.45	23.69	30.4108	30.1714	81.500
30.0	6.38	23.86	30.5512	30.3836	83.460
35.0	6.31	23.94	30.5801	30.4708	83.940
40.0	6.31	24.00	30.6531	30.5509	83.992
45.0	6.36	24.04	30.7536	30.6121	84.020
50.0	6.29	24.09	30.7329	30.6580	84.170
60.0	6.24	24.13	30.7399	30.7022	84.069
70.0	6.13	24.20	30.7194	30.7783	84.027
80.0	5.99	24.27	30.6762	30.8454	83.877
90.0	5.93	24.30	30.6518	30.8714	83.200
100.0	5.82	24.33	30.5918	30.8963	82.632
110.0	5.74	24.37	30.5602	30.9333	80.396
120.0	5.66	24.43	30.5542	30.9938	83.668
130.0	5.62	24.47	30.5617	31.0367	84.282
140.0	5.57	24.52	30.5791	31.0968	85.046
150.0	5.52	24.56	30.5880	31.1454	85.482
160.0	5.48	24.61	30.5980	31.1971	85.712
170.0	5.45	24.63	30.5997	31.2191	85.554
180.0	5.43	24.65	30.6049	31.2382	84.858
190.0	5.42	24.66	30.6101	31.2476	85.158
200.0	5.41	24.66	30.6135	31.2565	85.358
210.0	5.40	24.67	30.6160	31.2613	85.335
220.0	5.40	24.67	30.6204	31.2658	85.104
230.0	5.40	24.67	30.6238	31.2651	84.758
240.0	5.39	24.68	30.6287	31.2706	84.392
250.0	5.38	24.68	30.6271	31.2717	83.400
260.0	5.38	24.68	30.6303	31.2769	81.342
270.0	5.38	24.68	30.6303	31.2735	80.677
280.0	5.37	24.69	30.6374	31.2843	79.961
290.0	5.36	24.69	30.6414	31.2881	79.665
296.4	5.36	24.69	30.6338	31.2780	79.540

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : K-49
Latitude : 55 27.3
Longitude : 129 36.9
Date : 82/07/10

Time (start) : 2104 PDT
Time (stop) : 2106 PDT

Depth (air) : .60 m
Depth (sounder) : 168.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
2.6	14.52	5.96	12.0613	8.8230	34.650
4.0	14.54	5.97	12.0819	8.8351	33.750
5.0	14.25	6.89	13.4242	9.9742	33.400
10.0	12.24	11.96	19.8091	16.1423	40.970
15.0	8.01	21.26	28.9116	27.3402	62.200
20.0	6.69	23.33	30.2229	29.7564	78.787
25.0	6.45	23.68	30.4036	30.1626	81.737
30.0	6.37	23.85	30.5326	30.3695	83.175
35.0	6.33	23.95	30.6049	30.4867	83.737
40.0	6.32	23.99	30.6462	30.5339	83.950
45.0	6.33	24.04	30.7082	30.5960	83.987
50.0	6.31	24.08	30.7443	30.6457	83.950
60.0	6.38	24.14	30.8771	30.7324	83.832
70.0	6.35	24.20	30.9353	30.8124	83.656
80.0	6.20	24.25	30.8398	30.8444	83.337
90.0	6.07	24.27	30.7518	30.8526	83.106
100.0	5.87	24.31	30.6141	30.8794	82.550
110.0	5.78	24.35	30.5688	30.9101	81.862
120.0	5.75	24.37	30.5705	30.9288	81.700
130.0	5.67	24.42	30.5636	30.9893	83.839
140.0	5.63	24.47	30.5751	31.0376	84.183
150.0	5.58	24.51	30.5843	31.0890	84.650
159.8	5.53	24.56	30.5946	31.1421	85.150

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : K-49
Latitude : 55 27.2
Longitude : 129 36.9
Date : 82/07/12

Time (start) : 1500 PDT
Time (stop) : 1509 PDT

Depth (air) : 1.70 m
Depth (sounder) : 402.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
.4	14.25	5.05	10.4093	7.5781	38.350
1.0	14.24	5.86	11.7412	8.6332	37.800
2.0	14.21	6.56	12.8666	9.5357	40.450
3.0	14.09	7.39	14.1366	10.5930	46.225
4.0	13.89	7.91	14.8490	11.2295	49.250
5.0	13.64	8.31	15.3240	11.6953	53.550
10.0	10.69	15.26	23.2066	20.1126	46.495
15.0	7.67	21.71	29.1904	27.8492	70.687
20.0	6.56	23.50	30.3040	29.9564	79.729
25.0	6.41	23.73	30.4191	30.2171	82.179
30.0	6.36	23.87	30.5378	30.3847	83.275
35.0	6.35	23.95	30.6315	30.4960	84.193
40.0	6.34	24.00	30.6787	30.5526	84.150
45.0	6.34	24.01	30.6978	30.5701	84.431
50.0	6.37	24.08	30.7985	30.6563	84.269
60.0	6.35	24.16	30.8766	30.7556	84.182
70.0	6.25	24.24	30.8837	30.8441	83.969
80.0	6.23	24.27	30.8995	30.8815	83.663
90.0	5.98	24.30	30.7082	30.8854	83.534
100.0	5.79	24.35	30.5765	30.9128	82.522
110.0	5.73	24.37	30.5572	30.9366	82.719
120.0	5.68	24.41	30.5575	30.9799	83.856
130.0	5.61	24.48	30.5685	31.0494	85.029
140.0	5.56	24.53	30.5806	31.1049	85.624
150.0	5.52	24.56	30.5867	31.1432	85.668
160.0	5.49	24.59	30.5923	31.1749	85.758
170.0	5.47	24.61	30.5992	31.2010	85.669
180.0	5.45	24.63	30.6006	31.2157	85.503
190.0	5.43	24.64	30.6060	31.2311	85.447
200.0	5.42	24.65	30.6080	31.2423	85.280
210.0	5.41	24.66	30.6103	31.2491	85.100
220.0	5.40	24.66	30.6173	31.2557	84.907
230.0	5.40	24.67	30.6173	31.2577	84.602
240.0	5.39	24.67	30.6197	31.2640	83.871
250.0	5.38	24.68	30.6226	31.2705	82.995
260.0	5.38	24.68	30.6256	31.2726	81.968
270.0	5.37	24.68	30.6274	31.2731	80.922
279.0	5.37	24.68	30.6301	31.2759	80.458

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : M-49
Latitude : 55 27.1
Longitude : 129 36.9
Date : 82/07/10

Time (start) : 2022 PDT
Time (stop) : 2028 PDT

Depth (air) : .60 m
Depth (sounder) : 397.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.3	14.54	5.92	11.9993	8.7701	34.400
1.0	14.59	5.85	11.9167	8.6930	34.500
2.0	14.55	5.96	12.0819	8.8313	33.700
3.0	14.48	6.13	12.3091	9.0273	33.900
4.0	14.41	6.15	12.3091	9.0438	33.650
5.0	14.45	6.19	12.3917	9.1009	33.550
10.0	12.60	11.14	18.6951	15.1560	35.825
15.0	8.41	20.54	28.4036	26.4793	62.400
20.0	6.77	23.23	30.1836	29.6458	77.020
25.0	6.46	23.69	30.4259	30.1755	81.900
30.0	6.35	23.85	30.5182	30.3696	83.400
35.0	6.34	23.92	30.5843	30.4497	83.890
40.0	6.35	23.98	30.6703	30.5352	84.067
45.0	6.31	24.02	30.6834	30.5799	84.070
50.0	6.37	24.06	30.7804	30.6330	84.158
60.0	6.43	24.14	30.9250	30.7396	84.004
70.0	6.26	24.20	30.8389	30.7932	83.767
80.0	6.25	24.25	30.9053	30.8626	83.682
90.0	6.20	24.28	30.8802	30.8812	83.467
100.0	6.07	24.28	30.7735	30.8721	83.575
110.0	5.84	24.33	30.6066	30.8925	82.954
120.0	5.79	24.35	30.5946	30.9180	83.033
130.0	5.74	24.38	30.5731	30.9432	82.846
140.0	5.65	24.44	30.5670	31.0077	84.042
150.0	5.57	24.52	30.5811	31.0984	85.323
160.0	5.50	24.58	30.5911	31.1630	85.667
170.0	5.47	24.61	30.5986	31.2018	85.796
180.0	5.44	24.64	30.6033	31.2254	85.608
190.0	5.41	24.66	30.6049	31.2468	85.627
200.0	5.41	24.66	30.6097	31.2475	85.415
210.0	5.40	24.66	30.6108	31.2542	85.121
220.0	5.40	24.67	30.6167	31.2583	85.046
230.0	5.39	24.67	30.6192	31.2631	84.938
240.0	5.39	24.67	30.6226	31.2664	84.804
250.0	5.38	24.68	30.6270	31.2714	84.714
260.0	5.38	24.68	30.6311	31.2721	84.160
270.0	5.37	24.69	30.6329	31.2792	83.018
280.0	5.37	24.69	30.6338	31.2790	81.527
290.0	5.36	24.69	30.6374	31.2831	80.979
296.8	5.36	24.69	30.6428	31.2868	80.767

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : 0-49
Latitude : 55 26.9
Longitude : 129 36.9
Date : 82/07/10

Time (start) : 2008 PDT
Time (stop) : 2011 PDT

Depth (air) : 0.00 m
Depth (sounder) : 165.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.9	14.88	5.41	11.3385	8.1784	35.350
2.0	14.89	5.47	11.4418	8.2551	35.400
3.0	14.50	7.04	13.8165	10.2247	34.750
4.0	14.05	7.42	14.1676	10.6279	33.300
5.0	14.09	7.24	13.8991	10.4001	35.050
10.0	12.74	10.77	18.2666	14.7054	37.100
15.0	8.12	21.04	28.7712	27.0760	61.350
20.0	6.86	23.09	30.1010	29.4768	77.090
25.0	6.52	23.58	30.3640	30.0526	81.400
30.0	6.40	23.81	30.5099	30.3194	83.060
35.0	6.38	23.90	30.6049	30.4363	83.658
40.0	6.40	24.01	30.7495	30.5780	83.860
45.0	6.41	24.04	30.7990	30.6206	84.000
50.0	6.41	24.08	30.8444	30.6652	84.050
60.0	6.42	24.13	30.9102	30.7250	83.857
70.0	6.44	24.21	31.0292	30.8332	83.314
80.0	6.36	24.23	30.9729	30.8461	83.264
90.0	6.20	24.27	30.8790	30.8780	83.305
100.0	6.00	24.30	30.7288	30.8860	82.809
110.0	5.90	24.34	30.6669	30.9109	82.779
120.0	5.77	24.37	30.5899	30.9387	81.977
130.0	5.70	24.40	30.5636	30.9677	83.137
140.0	5.64	24.46	30.5705	31.0268	84.296
150.0	5.55	24.54	30.5861	31.1224	85.345
158.7	5.50	24.59	30.5990	31.1787	85.518

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : 0-49
Latitude : 55 26.9
Longitude : 129 36.9
Date : 82/07/12

Time (start) : 1524 PDT
Time (stop) : 1529 PDT

Depth (air) : .40 m
Depth (sounder) : 183.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
2.1	14.30	3.41	7.6835	5.4592	38.800
3.0	14.21	4.65	9.7278	7.0513	38.800
4.0	13.89	6.40	12.4330	9.2653	36.650
5.0	13.66	7.54	14.1160	10.6964	43.225
10.0	11.09	14.48	22.2761	19.1796	45.394
15.0	7.86	21.46	29.0699	27.5649	70.300
20.0	6.96	22.95	30.0226	29.3096	75.860
25.0	6.52	23.61	30.3881	30.0816	81.058
30.0	6.41	23.81	30.5189	30.3175	82.825
35.0	6.37	23.93	30.6256	30.4722	83.817
40.0	6.40	23.99	30.7254	30.5503	83.817
45.0	6.43	24.03	30.8080	30.6094	83.892
50.0	6.48	24.10	30.9353	30.7068	83.633
60.0	6.46	24.16	30.9821	30.7692	83.457
70.0	6.41	24.22	31.0116	30.8460	83.288
80.0	6.33	24.26	30.9830	30.8808	83.477
90.0	6.11	24.29	30.8209	30.8920	83.600
100.0	5.90	24.33	30.6621	30.9092	82.677
110.0	5.76	24.38	30.5811	30.9426	82.277
120.0	5.69	24.42	30.5695	30.9890	83.393
130.0	5.63	24.46	30.5715	31.0363	84.458
140.0	5.59	24.51	30.5827	31.0823	85.277
150.0	5.54	24.56	30.5987	31.1416	85.440
160.0	5.50	24.59	30.6049	31.1814	85.561
170.0	5.48	24.61	30.6090	31.2001	85.520
178.2	5.47	24.62	30.6152	31.2149	85.442

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : T-64
Latitude : 55 26.4
Longitude : 129 39.6
Date : 82/07/10

Time (start) : 1943 PDT
Time (stop) : 1947 PDT

Depth (air) : 0.00 m
Depth (sounder) : 250.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.9	14.05	6.74	13.0731	9.7420	32.050
2.0	14.07	6.75	13.0938	9.7541	32.325
3.0	14.05	6.82	13.1970	9.8418	31.200
4.0	14.11	6.88	13.3209	9.9280	30.850
5.0	14.09	7.23	13.8785	10.3833	31.000
10.0	12.82	10.79	18.4710	14.7456	37.230
15.0	8.52	20.42	28.3696	26.3500	56.412
20.0	7.28	22.66	29.9854	29.0021	76.000
25.0	6.61	23.57	30.4242	30.0438	80.762
30.0	6.53	23.74	30.5533	30.2495	82.437
35.0	6.43	23.84	30.5791	30.3668	83.162
40.0	6.43	23.91	30.6565	30.4535	83.800
45.0	6.43	23.99	30.7443	30.5477	83.975
50.0	6.46	24.06	30.8579	30.6422	83.850
60.0	6.51	24.11	30.9766	30.7207	83.230
70.0	6.48	24.18	31.0334	30.8053	82.612
80.0	6.37	24.25	31.0179	30.8787	82.406
90.0	6.24	24.28	30.9250	30.8934	83.175
100.0	5.98	24.32	30.7219	30.8981	83.550
110.0	5.82	24.36	30.6204	30.9271	83.344
120.0	5.78	24.39	30.6210	30.9618	83.800
130.0	5.68	24.44	30.5894	31.0164	84.350
140.0	5.62	24.48	30.5843	31.0537	84.722
150.0	5.56	24.53	30.5843	31.1064	85.112
160.0	5.52	24.57	30.5934	31.1503	85.272
170.0	5.47	24.61	30.5957	31.1960	85.089
180.0	5.43	24.64	30.6003	31.2316	84.972
190.0	5.43	24.64	30.6026	31.2294	84.756
200.0	5.42	24.65	30.6072	31.2392	84.639
210.0	5.42	24.65	30.6132	31.2409	84.520
220.0	5.42	24.65	30.6164	31.2437	84.417
230.0	5.41	24.66	30.6194	31.2534	84.070
240.0	5.39	24.67	30.6240	31.2635	83.715
245.3	5.39	24.67	30.6256	31.2643	83.650

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : T-64
Latitude : 55 26.4
Longitude : 129 39.6
Date : 82/07/12

Time (start) : 1424 PDT
Time (stop) : 1429 PDT

Depth (air) : .60 m
Depth (sounder) : 183.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.3	14.34	5.91	11.8754	8.7162	40.650
1.0	14.30	5.00	10.3473	7.5191	40.100
2.0	14.23	6.55	12.8666	9.5315	40.950
3.0	14.12	7.11	13.7133	10.2407	42.350
4.0	13.86	7.88	14.7767	11.1817	39.450
5.0	13.73	8.39	15.5098	11.8219	41.300
10.0	11.10	14.65	22.7080	19.4003	51.517
15.0	7.79	21.64	29.2265	27.7880	71.844
20.0	6.91	23.17	30.2391	29.5821	78.629
25.0	6.61	23.51	30.3597	29.9750	81.044
30.0	6.46	23.78	30.5301	30.2912	82.894
35.0	6.45	23.95	30.7159	30.5028	83.806
40.0	6.42	24.00	30.7495	30.5594	83.987
45.0	6.43	24.04	30.8206	30.6240	84.156
50.0	6.53	24.10	30.9740	30.7049	83.256
60.0	6.52	24.16	31.0425	30.7849	82.764
70.0	6.42	24.22	31.0106	30.8380	82.838
80.0	6.31	24.27	30.9730	30.8883	83.191
90.0	6.21	24.30	30.9101	30.9067	83.528
100.0	5.98	24.33	30.7357	30.9178	83.694
110.0	5.84	24.36	30.6416	30.9338	84.014
120.0	5.77	24.41	30.6332	30.9820	84.350
130.0	5.63	24.47	30.5785	31.0473	84.661
140.0	5.54	24.56	30.5886	31.1396	85.355
150.0	5.47	24.61	30.5919	31.1962	85.450
160.0	5.45	24.62	30.5919	31.2124	84.932
170.0	5.43	24.64	30.5946	31.2327	84.192
177.7	5.41	24.66	30.6008	31.2502	84.260

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : F-1-67
Latitude : 55 25.2
Longitude : 129 40.1
Date : 82/07/10

Time (start) : 1857 PDT
Time (stop) : 1859 PDT

Depth (air) : 0.00 m
Depth (sounder) : 58.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.9	14.72	7.38	14.4980	10.7134	40.600
2.0	14.73	7.37	14.4980	10.7085	40.750
3.0	14.72	7.38	14.4980	10.7132	38.950
4.0	14.61	7.85	15.2001	11.3078	38.700
5.0	14.45	7.81	15.0349	11.2206	39.350
10.0	10.47	16.68	24.9114	21.9070	47.886
15.0	7.61	22.24	29.7872	28.5172	74.370
20.0	7.13	23.01	30.2539	29.4134	78.550
25.0	6.98	23.29	30.4480	29.7499	79.630
30.0	6.68	23.95	30.9394	30.5415	81.070
35.0	6.59	24.11	31.0489	30.7365	81.600
40.0	6.53	24.15	31.0303	30.7707	82.140
45.0	6.47	24.21	31.0420	30.8344	82.242
50.0	6.39	24.24	31.0096	30.8661	82.330
54.6	6.30	24.28	30.9601	30.8970	82.650

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : B-1-68
Latitude : 55 25.2
Longitude : 129 40.1
Date : 82/07/10

Time (start) : 1921 PDT
Time (stop) : 1925 PDT

Depth (air) : 0.00 m
Depth (sounder) : 219.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.7	14.05	8.06	15.1794	11.4536	38.800
2.0	14.07	8.05	15.1794	11.4483	38.350
3.0	14.04	8.10	15.2414	11.5095	37.100
4.0	14.04	7.97	15.0349	11.3402	37.450
5.0	14.02	7.98	15.0349	11.3453	37.500
10.0	11.66	13.70	21.7358	18.2873	41.900
15.0	7.98	21.49	29.2059	27.6260	66.637
20.0	7.06	23.15	30.3612	29.5872	78.180
25.0	6.68	23.65	30.5843	30.1593	80.862
30.0	6.68	23.80	30.7649	30.3499	81.662
35.0	6.62	23.93	30.8651	30.5086	82.050
40.0	6.61	23.99	30.9301	30.5854	82.100
45.0	6.62	24.01	30.9560	30.6076	82.062
50.0	6.59	24.07	30.9973	30.6753	81.940
60.0	6.53	24.14	31.0348	30.7622	82.059
70.0	6.42	24.23	31.0334	30.8601	81.944
80.0	6.28	24.28	30.9582	30.8983	82.167
90.0	6.16	24.31	30.8857	30.9204	82.570
100.0	5.98	24.33	30.7334	30.9163	82.806
110.0	5.84	24.36	30.6393	30.9323	82.889
120.0	5.85	24.39	30.6806	30.9666	83.283
130.0	5.73	24.43	30.6338	31.0124	84.130
140.0	5.65	24.48	30.6049	31.0542	84.635
150.0	5.54	24.56	30.5934	31.1383	85.000
160.0	5.48	24.59	30.5884	31.1785	85.065
170.0	5.45	24.62	30.5925	31.2082	84.865
180.0	5.42	24.64	30.5966	31.2331	84.850
190.0	5.42	24.64	30.6008	31.2331	84.690
200.0	5.42	24.64	30.6008	31.2318	84.610
208.5	5.42	24.65	30.6111	31.2393	84.505

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : B-1-68
Latitude : 55 25.5
Longitude : 129 40.2
Date : 82/07/12

Time (start) : 1405 PDT
Time (stop) : 1413 PDT

Depth (air) : 1.80 m
Depth (sounder) : 229.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
-.1	14.21	6.43	12.6601	9.3706	42.100
1.0	14.24	6.44	12.6877	9.3855	41.817
2.0	14.21	6.93	13.4655	10.0170	43.350
3.0	14.10	7.39	14.1366	10.5910	43.725
4.0	13.94	7.98	14.9832	11.3269	43.050
5.0	13.44	9.21	16.5939	12.8191	42.550
10.0	10.78	15.55	23.7152	20.4980	51.668
15.0	7.52	22.27	29.7307	28.5346	75.144
20.0	7.06	23.22	30.4480	29.6771	79.050
25.0	6.76	23.57	30.5682	30.0693	80.933
30.0	6.72	23.67	30.6556	30.1965	81.541
35.0	6.73	23.82	30.8362	30.3840	81.515
40.0	6.67	23.96	30.9503	30.5523	81.768
45.0	6.62	24.08	31.0348	30.6917	81.755
50.0	6.59	24.11	31.0530	30.7338	81.765
60.0	6.50	24.18	31.0539	30.8124	81.854
70.0	6.34	24.26	30.9944	30.8876	82.334
80.0	6.22	24.29	30.9193	30.9056	82.930
90.0	6.09	24.31	30.8173	30.9053	83.402
100.0	5.97	24.33	30.7297	30.9127	83.532
110.0	5.79	24.38	30.6225	30.9540	83.507
120.0	5.76	24.41	30.6276	30.9872	84.155
130.0	5.67	24.46	30.6069	31.0412	84.698
140.0	5.60	24.51	30.5973	31.0930	84.966
150.0	5.53	24.56	30.5911	31.1447	85.090
160.0	5.48	24.60	30.5940	31.1862	85.105
170.0	5.45	24.62	30.5925	31.2115	85.100
180.0	5.41	24.66	30.5987	31.2488	84.662
190.0	5.40	24.66	30.6002	31.2522	84.264
200.0	5.39	24.67	30.6030	31.2582	83.795
210.0	5.40	24.67	30.6083	31.2573	83.694
219.7	5.39	24.67	30.6124	31.2594	83.516

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : K-1-70
Latitude : 55 24.7
Longitude : 129 40.5
Date : 82/07/10

Time (start) : 1836 PDT
Time (stop) : 1838 PDT

Depth (air) : 0.00 m
Depth (sounder) : 85.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.5	14.23	7.91	15.0555	11.3000	41.000
2.0	14.25	7.84	14.9523	11.2108	40.950
3.0	14.21	7.92	15.0555	11.3050	39.650
4.0	14.14	7.98	15.1175	11.3762	38.800
10.0	11.67	14.07	22.0889	18.7596	39.600
15.0	7.64	22.39	29.9957	28.7176	70.712
20.0	7.09	23.50	30.8045	30.0398	77.867
25.0	6.90	23.88	31.0695	30.4893	79.337
30.0	6.85	24.01	31.1693	30.6405	79.783
35.0	6.82	24.06	31.1986	30.7007	79.900
40.0	6.80	24.08	31.2175	30.7311	79.983
45.0	6.77	24.13	31.2399	30.7853	80.175
50.0	6.74	24.17	31.2605	30.8294	80.262
60.0	6.72	24.22	31.2993	30.8880	80.106
70.0	6.70	24.31	31.3896	30.9977	79.750
80.3	6.72	24.36	31.4799	31.0734	78.850

APPENDIX IV

CTD-TRANSMITTANCE DATA - OCTOBER 1982

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : G5
Latitude : 55 27.7
Longitude : 129 29.2
Date : 82/10/01

Time (start) : 1557 PDT
Time (stop) : 1601 PDT

Depth (air) : .40 m
Depth (sounder) : 100.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.5	9.79	10.88	16.7901	14.3202	3.500
2.0	9.81	11.01	16.9833	14.4914	4.829
3.0	10.16	13.66	20.8581	17.9556	20.475
4.0	10.25	15.05	22.8199	19.7612	30.050
5.0	10.32	16.47	24.8023	21.6067	40.025
10.0	10.19	17.78	26.4495	23.2683	71.562
15.0	9.75	18.87	27.5033	24.5899	79.310
20.0	9.02	20.07	28.4045	25.9948	81.800
25.0	8.12	21.66	29.5541	27.8600	81.394
30.0	7.47	22.65	30.1527	29.0125	80.260
35.0	7.31	22.88	30.2807	29.2804	80.610
40.0	7.17	23.08	30.3961	29.5177	80.239
45.0	7.06	23.24	30.4741	29.6967	79.933
50.0	7.00	23.32	30.5140	29.7923	79.800
60.0	6.89	23.47	30.5886	29.9599	80.096
70.0	6.80	23.58	30.6495	30.0973	77.547
79.9	6.75	23.65	30.6792	30.1722	77.442

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : G5
Latitude : 55 27.7
Longitude : 129 29.2
Date : 82/10/01

Time (start) : 1644 PDT
Time (stop) : 1647 PDT

Depth (air) : .50 m
Depth (sounder) : 100.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.4	10.01	10.35	16.1706	13.6656	9.650
2.0	10.02	11.11	17.2463	14.6518	10.318
3.0	10.26	14.08	21.4983	18.5085	13.850
4.0	10.41	16.17	24.4719	21.2397	31.375
10.0	9.97	18.35	26.9989	23.9498	73.225
15.0	9.39	19.45	27.9328	25.2622	80.890
20.0	9.10	19.93	28.2875	25.8237	82.006
25.0	8.46	21.03	29.0851	27.1118	82.115
30.0	7.55	22.53	30.0887	28.8773	81.311
35.0	7.21	23.01	30.3479	29.4344	80.589
40.0	7.04	23.27	30.4856	29.7301	80.211
45.0	6.95	23.39	30.5512	29.8717	80.795
50.0	6.90	23.44	30.5636	29.9269	80.017
60.0	6.82	23.53	30.5980	30.0352	81.040
70.0	6.74	23.64	30.6571	30.1601	80.213
81.8	6.64	23.75	30.6933	30.2853	72.182

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : M9
Latitude : 55 27.1
Longitude : 129 29.9
Date : 82/10/01

Time (start) : 1801 PDT
Time (stop) : 1808 PDT

Depth (air) : .60 m
Depth (sounder) : 135.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.7	9.97	12.13	18.6280	15.9548	18.050
2.0	10.22	14.91	22.6065	19.5758	18.867
3.0	10.35	16.49	24.8539	21.6405	34.750
4.0	10.31	16.66	25.0501	21.8491	57.400
5.0	10.31	16.68	25.0707	21.8685	67.025
10.0	9.91	18.09	26.5956	23.6074	74.361
15.0	9.17	19.88	28.2905	25.7749	82.265
20.0	8.57	20.86	28.9672	26.9136	82.127
25.0	7.56	22.52	30.0855	28.8683	80.996
30.0	7.26	22.98	30.3492	29.4003	80.708
35.0	7.12	23.17	30.4556	29.6263	80.873
40.0	7.03	23.32	30.5430	29.8023	81.358
45.0	6.95	23.44	30.6020	29.9331	81.521
50.0	6.89	23.50	30.6160	29.9976	81.019
60.0	6.83	23.59	30.6825	30.1148	79.336
70.0	6.74	23.70	30.7251	30.2341	69.261
80.0	6.66	23.77	30.7321	30.3076	58.124
90.0	6.42	23.92	30.6888	30.4683	49.166
100.0	6.13	24.13	30.6456	30.6815	52.864
110.0	5.95	24.26	30.6352	30.8289	54.170
120.0	5.70	24.43	30.5993	31.0075	58.474
128.5	5.60	24.51	30.5905	31.0853	61.592

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : L10
Latitude : 55 27.2
Longitude : 129 30.0
Date : 82/10/01

Time (start) : 1717 PDT
Time (stop) : 1723 PDT

Depth (air) : .60 m
Depth (sounder) : 150.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.7	10.35	15.22	23.1296	20.0011	21.650
2.0	10.33	15.61	23.6459	20.5005	28.950
3.0	10.41	16.07	24.3377	21.1116	50.400
4.0	10.42	16.57	25.0088	21.7453	62.150
5.0	10.35	16.93	25.4424	22.2028	65.550
10.0	10.07	18.13	26.8069	23.6978	77.665
15.0	9.58	19.15	27.7139	24.9136	81.564
20.0	9.09	20.04	28.4235	25.9669	82.518
25.0	7.98	21.86	29.6775	28.0995	81.077
30.0	7.40	22.77	30.2276	29.1539	80.564
35.0	7.15	23.13	30.4284	29.5708	80.509
40.0	7.02	23.32	30.5317	29.7971	80.827
45.0	6.93	23.45	30.6030	29.9453	81.023
50.0	6.82	23.58	30.6537	30.0946	80.145
60.0	6.80	23.63	30.6971	30.1580	79.757
70.0	6.72	23.71	30.7166	30.2420	75.048
80.0	6.65	23.77	30.7213	30.3102	62.555
90.0	6.45	23.90	30.6821	30.4415	13.928
100.0	6.18	24.08	30.6406	30.6325	3.395
110.0	5.96	24.24	30.6198	30.8012	.567
120.0	5.73	24.42	30.6031	30.9876	4.515
130.0	5.62	24.49	30.5937	31.0720	17.567
140.0	5.61	24.51	30.5997	31.0863	11.533
146.8	5.57	24.54	30.6003	31.1198	2.583

EPS MARINE CTD OCEANOGRAPHY

Survey	: ALICE ARM	Time (start)	: 2153 PDT
Station	: L10	Time (stop)	: 2158 PDT
Latitude	: 55 27.2		
Longitude	: 129 30.0	Depth (air)	: .90 m
Date	: 82/10/01	Depth (sounder)	: 160.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.4	10.36	15.80	23.9350	20.7550	49.950
1.0	10.36	15.76	23.8730	20.6961	51.850
2.0	10.37	15.51	23.5364	20.3717	50.800
3.0	10.28	17.41	26.0310	22.8103	59.100
4.0	10.01	18.30	26.9705	23.8949	71.300
5.0	9.92	18.56	27.2390	24.2162	77.550
10.0	9.05	20.05	28.3850	25.9660	81.033
15.0	7.98	21.87	29.6886	28.1123	81.344
20.0	7.48	22.66	30.1827	29.0363	81.044
25.0	7.21	23.07	30.4087	29.5093	81.269
30.0	7.07	23.26	30.5062	29.7274	81.000
35.0	7.01	23.35	30.5613	29.8377	81.011
40.0	6.94	23.44	30.6049	29.9395	81.169
45.0	6.90	23.50	30.6256	30.0030	80.800
50.0	6.85	23.56	30.6565	30.0730	80.750
60.0	6.81	23.63	30.7010	30.1536	79.530
70.0	6.76	23.68	30.7276	30.2186	77.068
80.0	6.71	23.74	30.7460	30.2805	68.631
90.0	6.62	23.83	30.7598	30.3745	76.003
100.0	6.47	23.90	30.7150	30.4510	61.319
110.0	6.30	24.01	30.6749	30.5534	20.642
120.0	6.15	24.12	30.6646	30.6771	1.847
130.0	6.04	24.21	30.6692	30.7757	27.478
140.0	5.95	24.26	30.6473	30.8232	37.655
149.0	5.85	24.33	30.6346	30.8948	.519

EPS MARINE CTD OCEANOGRAPHY

Survey	: ALICE ARM		Time (start)	: 1832 PDT
Station	: N8		Time (stop)	: 1837 PDT
Latitude	: 55 27.0			
Longitude	: 129 29.7		Depth (air)	: .50 m
Date	: 82/10/01		Depth (sounder)	: 125.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.6	10.17	12.25	18.9171	16.1371	19.700
1.0	10.12	12.26	18.9067	16.1474	15.125
2.0	10.15	12.84	19.7276	16.9016	9.425
3.0	10.28	14.41	21.9732	18.9422	5.900
4.0	10.20	16.39	24.5958	21.4796	12.950
5.0	10.16	17.27	25.7419	22.6066	54.125
10.0	9.84	18.55	27.1549	24.1878	75.504
15.0	9.19	19.83	28.2439	25.7105	81.611
20.0	8.22	21.48	29.4196	27.6537	81.615
25.0	7.46	22.67	30.1733	29.0408	80.815
30.0	7.24	23.00	30.3502	29.4186	80.544
35.0	7.16	23.11	30.4191	29.5564	80.690
40.0	7.05	23.27	30,5079	29.7420	80.930
45.0	7.00	23.37	30.5760	29.8596	81.570
50.0	6.91	23.47	30.6070	29.9671	81.060
60.0	6.85	23.56	30.6611	30.0777	80.038
70.0	6.75	23.67	30.7049	30.2029	74.608
80.0	6.67	23.76	30.7308	30.3000	55.693
90.0	6.53	23.85	30.7092	30.3927	31.867
100.0	6.32	24.00	30.6796	30.5467	20.567
110.0	6.14	24.13	30.6637	30.6899	20.198
118.4	5.89	24.30	30.6256	30.8643	11.340

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : 013
Latitude : 55 26.9
Longitude : 129 30.6
Date : 82/10/01

Time (start) : 2000 PDT
Time (stop) : 2005 PDT

Depth (air) : .80 m
Depth (sounder) : 220.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.5	10.44	16.40	24.8023	21.5386	24.900
1.0	10.41	16.37	24.7445	21.4973	25.515
2.0	10.35	17.19	25.7935	22.5401	24.250
3.0	10.24	17.90	26.6401	23.4230	52.200
4.0	10.04	18.29	26.9912	23.8915	69.550
5.0	9.92	18.50	27.1564	24.1354	75.800
10.0	9.49	19.36	27.9023	25.1685	80.437
15.0	8.47	21.05	29.1270	27.1458	81.743
20.0	7.70	22.33	29.9854	28.6492	81.030
25.0	7.40	22.79	30.2573	29.1801	81.008
30.0	7.21	23.07	30.4053	29.5030	81.150
35.0	7.08	23.25	30.4982	29.7106	81.025
40.0	7.05	23.31	30.5567	29.7946	81.625
45.0	6.99	23.41	30.6049	29.9013	81.958
50.0	6.93	23.48	30.6374	29.9814	81.807
60.0	6.87	23.57	30.6919	30.0913	81.704
70.0	6.82	23.64	30.7322	30.1765	82.417
80.0	6.77	23.70	30.7526	30.2386	81.465
90.0	6.63	23.80	30.7443	30.3409	76.371
100.0	6.43	23.92	30.6970	30.4656	44.446
110.0	6.15	24.13	30.6686	30.6823	44.425
120.0	5.91	24.28	30.6285	30.8466	73.182
130.0	5.76	24.39	30.6135	30.9644	76.083
140.0	5.67	24.47	30.6160	31.0498	70.223
150.0	5.61	24.51	30.6144	31.0928	60.873
160.0	5.57	24.53	30.6034	31.1141	46.261
170.0	5.53	24.58	30.6160	31.1613	46.896
180.0	5.52	24.59	30.6211	31.1730	49.486
190.0	5.49	24.61	30.6224	31.1973	51.288
198.0	5.52	24.58	30.6279	31.1670	6.722

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : P12
Latitude : 55 26.8
Longitude : 129 30.4
Date : 82/10/01

Time (start) : 2022 PDT
Time (stop) : 2031 PDT

Depth (air) : .80 m
Depth (sounder) : 220.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.7	10.42	16.20	24.5132	21.2738	56.000
2.0	10.36	16.79	25.2669	22.0273	60.925
3.0	10.08	18.23	26.9499	23.8280	65.300
4.0	9.92	18.56	27.2390	24.2165	71.900
5.0	9.81	18.84	27.5074	24.5517	77.950
10.0	9.22	19.81	28.2353	25.6914	81.281
15.0	8.17	21.54	29.4568	27.7234	81.885
20.0	7.66	22.37	29.9992	28.6970	81.361
25.0	7.37	22.82	30.2580	29.2121	80.835
30.0	7.16	23.13	30.4376	29.5785	81.010
35.0	7.07	23.27	30.5140	29.7353	81.515
40.0	7.05	23.33	30.5657	29.8073	82.035
45.0	7.00	23.41	30.6218	29.9076	82.277
50.0	6.95	23.46	30.6379	29.9630	82.135
60.0	6.86	23.59	30.7082	30.1129	82.390
70.0	6.80	23.67	30.7495	30.2103	82.600
80.0	6.74	23.73	30.7636	30.2705	82.247
90.0	6.64	23.80	30.7536	30.3443	79.657
100.0	6.39	23.95	30.6875	30.4943	42.252
110.0	6.17	24.10	30.6689	30.6605	51.435
120.0	5.97	24.26	30.6538	30.8262	66.866
130.0	5.77	24.39	30.6169	30.9641	74.679
140.0	5.69	24.45	30.6093	31.0219	75.353
150.0	5.61	24.52	30.6162	31.0981	71.841
160.0	5.57	24.55	30.6152	31.1299	58.657
170.0	5.52	24.58	30.6132	31.1665	52.737
180.0	5.50	24.59	30.6134	31.1777	51.480
190.0	5.50	24.60	30.6187	31.1853	56.800
200.0	5.48	24.61	30.6230	31.2006	47.373
209.6	5.50	24.60	30.6274	31.1827	19.198

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : N14
Latitude : 55 27.0
Longitude : 129 30.7
Date : 82/10/01

Time (start) : 1913 PDT
Time (stop) : 1917 PDT

Depth (air) : .90 m
Depth (sounder) : 120.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.4	10.35	14.24	21.7874	18.7348	7.250
1.0	10.35	14.37	21.9592	18.8972	14.518
2.0	10.45	15.97	24.2241	20.9839	49.225
3.0	10.33	17.00	25.5250	22.2933	57.550
4.0	10.20	17.62	26.2478	23.0665	63.800
5.0	10.13	17.98	26.6608	23.5116	69.300
10.0	9.48	19.38	27.9170	25.1893	77.992
15.0	8.77	20.55	28.7795	26.5608	81.685
20.0	8.06	21.72	29.5780	27.9328	80.464
25.0	7.40	22.78	30.2407	29.1673	80.814
30.0	7.18	23.13	30.4500	29.5763	81.415
35.0	7.09	23.26	30.5306	29.7361	81.590
40.0	7.02	23.37	30.5884	29.8550	81.880
45.0	6.98	23.43	30.6173	29.9243	81.775
50.0	6.93	23.50	30.6648	30.0094	81.805
60.0	6.90	23.54	30.6875	30.0593	81.874
70.0	6.82	23.64	30.7327	30.1762	81.162
80.0	6.73	23.73	30.7577	30.2736	82.067
90.0	6.57	23.84	30.7301	30.3856	73.416
100.0	6.33	23.98	30.6765	30.5311	53.327
110.0	6.09	24.15	30.6488	30.7101	9.000
118.0	5.98	24.24	30.6370	30.7970	1.194

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : 020
Latitude : 55 26.9
Longitude : 129 31.8
Date : 82/10/01

Time (start) : 2056 PDT
Time (stop) : 2059 PDT

Depth (air) : .70 m
Depth (sounder) : 120.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.4	10.33	16.24	24.4925	21.3065	28.700
1.0	10.31	16.19	24.4099	21.2382	25.950
2.0	10.34	16.26	24.5390	21.3431	38.787
3.0	10.24	17.59	26.2374	23.0349	63.525
4.0	10.13	18.00	26.6814	23.5322	73.000
5.0	9.97	18.34	26.9912	23.9387	77.150
10.0	9.35	19.64	28.1407	25.5025	81.728
15.0	8.42	21.18	29.2361	27.3003	82.464
20.0	7.60	22.52	30.1182	28.8749	81.914
25.0	7.26	23.05	30.4338	29.4937	82.786
30.0	7.15	23.21	30.5146	29.6725	83.025
35.0	7.10	23.29	30.5666	29.7697	82.543
40.0	7.02	23.39	30.6108	29.8794	82.629
45.0	6.98	23.44	30.6374	29.9392	82.657
50.0	6.94	23.49	30.6639	29.9991	82.964
60.0	6.91	23.55	30.7005	30.0660	83.176
70.0	6.83	23.65	30.7509	30.1829	83.089
80.0	6.77	23.73	30.7852	30.2722	83.517
88.1	6.68	23.79	30.7856	30.3447	83.429

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : Q20
Latitude : 55 26.7
Longitude : 129 31.8
Date : 82/10/01

Time (start) : 2109 PDT
Time (stop) : 2116 PDT

Depth (air) : .80 m
Depth (sounder) : 260.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.5	10.40	15.87	24.0589	20.8523	40.600
1.0	10.41	15.86	24.0486	20.8373	40.950
2.0	10.40	16.09	24.3509	21.1309	43.043
3.0	10.33	17.74	26.5162	23.2461	65.500
4.0	10.03	18.28	26.9705	23.8774	74.575
5.0	9.88	18.61	27.2699	24.2705	78.600
10.0	9.30	19.71	28.1806	25.5818	82.005
15.0	8.30	21.36	29.3512	27.5140	83.200
20.0	7.60	22.49	30.0916	28.8403	82.179
25.0	7.27	23.00	30.3855	29.4275	81.981
30.0	7.14	23.20	30.4991	29.6597	82.494
35.0	7.10	23.27	30.5430	29.7420	82.543
40.0	7.05	23.36	30.6108	29.8572	82.893
45.0	6.96	23.46	30.6462	29.9646	83.244
50.0	6.92	23.52	30.6720	30.0311	82.444
60.0	6.89	23.57	30.7027	30.0880	82.624
70.0	6.82	23.56	30.7536	30.1979	83.377
80.0	6.75	23.73	30.7766	30.2775	83.387
90.0	6.64	23.82	30.7770	30.3714	83.300
100.0	6.46	23.91	30.7056	30.4519	69.906
110.0	6.30	24.01	30.6798	30.5561	58.097
120.0	6.07	24.18	30.6604	30.7367	64.484
130.0	5.88	24.31	30.6243	30.8712	69.265
140.0	5.71	24.42	30.5985	30.9865	73.075
150.0	5.62	24.50	30.6090	31.0781	73.557
160.0	5.57	24.50	30.5685	31.0731	68.935
170.0	5.52	24.55	30.5791	31.1302	70.228
180.0	5.51	24.59	30.6207	31.1775	57.224
190.0	5.50	24.60	30.6219	31.1888	38.182
200.0	5.50	24.57	30.5976	31.1548	37.724
210.0	5.49	24.61	30.6316	31.1952	33.015
220.0	5.49	24.61	30.6365	31.1960	30.347
230.0	5.48	24.62	30.6416	31.2117	19.233
237.7	5.47	24.63	30.6462	31.2182	16.755

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : S20
Latitude : 55 26.5
Longitude : 129 31.8
Date : 82/10/01

Time (start) : 2134 PDT
Time (stop) : 2136 PDT

Depth (air) : .90 m
Depth (sounder) : 120.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.4	10.35	15.81	23.9350	20.7652	36.350
1.0	10.35	15.85	23.9763	20.8044	36.600
2.0	10.36	16.11	24.3411	21.1443	40.644
3.0	10.26	17.68	26.3717	23.1524	65.500
4.0	10.00	18.30	26.9705	23.9013	71.975
5.0	9.77	18.89	27.5487	24.6165	77.450
10.0	9.25	19.79	28.2420	25.6727	81.421
15.0	8.34	21.29	29.3005	27.4289	82.267
20.0	7.61	22.48	30.0783	28.8239	81.858
25.0	7.30	22.96	30.3605	29.3787	81.600
30.0	7.13	23.21	30.5017	29.6752	82.017
35.0	7.09	23.31	30.5774	29.7904	82.367
40.0	7.05	23.38	30.6256	29.8748	83.050
45.0	7.02	23.41	30.6428	29.9161	83.350
50.0	6.95	23.49	30.6669	29.9969	83.342
60.0	6.88	23.58	30.7109	30.1052	82.777
70.0	6.81	23.66	30.7513	30.1986	83.427
80.0	6.77	23.71	30.7701	30.2562	82.871
90.0	6.67	23.81	30.7873	30.3600	83.021
99.6	6.52	23.89	30.7495	30.4396	81.342

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : R64
Latitude : 55 26.6
Longitude : 129 39.7
Date : 82/10/02

Time (start) : 2006 PDT
Time (stop) : 2013 PDT

Depth (air) : .90 m
Depth (sounder) : 260.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.4	9.90	17.68	26.0619	23.0009	78.550
2.0	9.82	17.83	26.1961	23.2633	77.625
3.0	9.66	18.50	26.9292	24.0878	77.150
4.0	9.52	18.86	27.2803	24.5232	77.050
5.0	9.43	19.00	27.3835	24.6866	78.350
10.0	9.16	19.79	28.1476	25.6496	79.165
15.0	7.80	22.32	30.0651	28.6545	82.271
20.0	7.42	22.94	30.4535	29.3762	82.825
25.0	7.29	23.15	30.5872	29.6273	83.307
30.0	7.15	23.34	30.6816	29.8471	83.443
35.0	7.06	23.44	30.7141	29.9573	83.407
40.0	7.00	23.49	30.7229	30.0158	83.493
45.0	6.98	23.52	30.7347	30.0441	83.579
50.0	6.96	23.57	30.7672	30.1016	83.500
60.0	6.90	23.64	30.8017	30.1855	83.400
70.0	6.89	23.72	30.8871	30.2829	82.933
80.0	6.86	23.77	30.9243	30.3420	82.793
90.0	6.81	23.83	30.9450	30.4069	82.676
100.0	6.70	23.89	30.9132	30.4656	82.561
110.0	6.59	23.96	30.8899	30.5344	82.560
120.0	6.33	24.08	30.7946	30.6548	82.356
130.0	6.09	24.20	30.7030	30.7640	82.219
140.0	5.98	24.27	30.6823	30.8400	82.759
150.0	5.85	24.36	30.6669	30.9313	83.284
160.0	5.73	24.44	30.6490	31.0182	83.467
170.0	5.59	24.54	30.6300	31.1250	83.125
180.0	5.54	24.57	30.6270	31.1584	82.614
190.0	5.50	24.60	30.6285	31.1908	82.550
200.0	5.50	24.60	30.6282	31.1911	82.246
209.2	5.48	24.62	30.6346	31.2063	81.755

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : T64
Latitude : 55 26.4
Longitude : 129 39.6
Date : 82/10/02

Time (start) : 2029 PDT
Time (stop) : 2032 PDT

Depth (air) : .90 m
Depth (sounder) : 220.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.2	9.85	16.53	24.4925	21.5921	21.050
1.0	9.85	16.90	24.9881	22.0719	19.883
2.0	9.89	17.30	25.5560	22.5947	65.175
3.0	9.99	17.43	25.8141	22.7830	76.700
4.0	9.97	17.49	25.8761	22.8541	77.800
5.0	9.85	17.71	26.0619	23.1141	77.800
10.0	9.39	19.26	27.6756	25.0121	79.479
15.0	8.20	21.64	29.6013	27.8477	82.000
20.0	7.56	22.70	30.3003	29.0959	82.912
25.0	7.30	23.19	30.6297	29.6703	83.100
30.0	7.17	23.34	30.6958	29.8495	83.260
35.0	7.10	23.43	30.7371	29.9474	83.190
40.0	7.04	23.49	30.7536	30.0158	83.360
45.0	7.01	23.52	30.7618	30.0537	83.190
50.0	6.97	23.57	30.7804	30.1054	82.775
60.0	6.95	23.65	30.8591	30.2025	83.038
70.0	6.92	23.70	30.9009	30.2674	82.722
80.0	6.90	23.74	30.9222	30.3051	82.618
90.0	6.88	23.76	30.9332	30.3339	82.595
100.0	6.77	23.85	30.9394	30.4296	82.500
110.0	6.64	23.92	30.9034	30.5032	82.518
120.0	6.48	24.02	30.8672	30.5999	82.540
130.0	6.18	24.16	30.7476	30.7302	82.418
140.0	5.91	24.32	30.6725	30.8931	83.041
150.0	5.78	24.41	30.6503	30.9833	83.455
160.0	5.69	24.47	30.6425	31.0487	83.450
170.0	5.57	24.55	30.6293	31.1387	83.114
180.0	5.51	24.60	30.6274	31.1905	82.459
190.0	5.51	24.60	30.6312	31.1884	82.355
195.8	5.51	24.60	30.6359	31.1881	82.375

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : V64
Latitude : 55 26.1
Longitude : 129 39.5
Date : 82/10/02

Time (start) : 1934 PDT
Time (stop) : 1937 PDT

Depth (air) : .70 m
Depth (sounder) : 120.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.4	9.77	17.29	25.4424	22.5573	73.850
2.0	9.71	17.31	25.4143	22.5701	72.627
3.0	9.31	19.06	27.3525	24.7428	72.225
4.0	9.15	19.56	27.8585	25.3606	77.400
5.0	8.92	20.21	28.4883	26.1564	78.850
10.0	8.09	21.77	29.6596	28.0010	81.861
15.0	7.60	22.68	30.3158	29.0814	82.686
20.0	7.35	23.11	30.5934	29.5846	82.956
25.0	7.22	23.33	30.7205	29.8351	82.925
30.0	7.19	23.37	30.7426	29.8837	83.022
35.0	7.12	23.43	30.7474	29.9463	83.015
40.0	7.04	23.46	30.7242	29.9838	83.456
45.0	7.03	23.52	30.7753	30.0513	83.456
50.0	7.04	23.56	30.8409	30.1100	83.107
60.0	6.99	23.64	30.8857	30.1983	82.860
70.0	6.93	23.71	30.9174	30.2749	82.627
80.0	6.84	23.79	30.9273	30.3670	82.597
90.0	6.79	23.82	30.9237	30.3984	82.619
95.1	6.77	23.83	30.9147	30.4028	82.767

EPS MARINE CTD OCEANOGRAPHY

Survey : ALICE ARM
Station : K1-70
Latitude : 55 24.7
Longitude : 129 40.5
Date : 82/10/02

Time (start) : 1904 PDT
Time (stop) : 1906 PDT

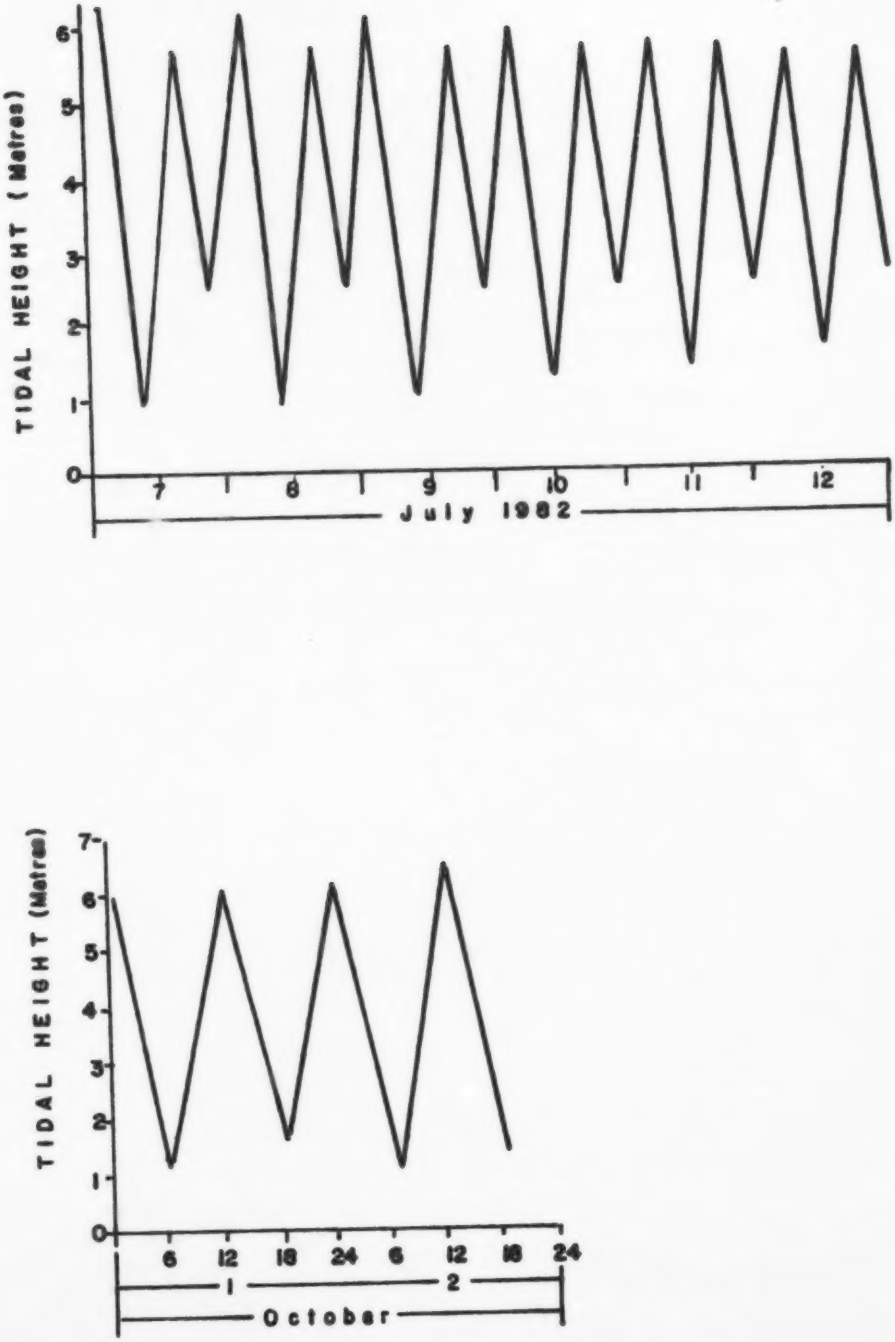
Depth (air) : .80 m
Depth (sounder) : 90.00 m

Depths adjusted for Air Reading Correction.

Depth (m)	Temp (C)	Sigma-T	Conductivity	Salinity	Transmission
1.3	9.51	18.33	26.5782	23.8429	77.800
1.0	9.56	18.28	26.5575	23.7870	77.695
2.0	9.53	18.30	26.5678	23.8147	77.675
3.0	9.56	18.28	26.5575	23.7865	77.700
4.0	9.52	18.55	26.8879	24.1359	77.725
5.0	9.22	19.44	27.7655	25.2177	77.850
10.0	7.99	22.07	29.9326	28.3686	80.433
15.0	7.63	22.65	30.2952	29.0395	82.317
20.0	7.51	22.87	30.4569	29.3072	82.600
25.0	7.24	23.42	30.8493	29.9532	82.808
30.0	7.16	23.59	30.9796	30.1587	82.629
35.0	7.18	23.64	31.0626	30.2272	82.433
40.0	7.15	23.71	31.1212	30.3142	82.342
45.0	7.14	23.76	31.1659	30.3707	82.333
50.0	7.16	23.80	31.2451	30.4355	82.342
60.0	7.22	23.96	31.4880	30.6447	82.441
70.0	7.19	24.02	31.5294	30.7110	82.454
78.6	7.21	24.03	31.5668	30.7284	79.971

APPENDIX V

TIDAL STATE THROUGHOUT SAMPLING PERIODS
- JULY AND OCTOBER 1982



APPENDIX V TIDAL STATE THROUGHOUT SAMPLING PERIODS - STATION Q-20, July and October, 1982

APPENDIX VI

TAILINGS DISCHARGE - JANUARY/DECEMBER 1982

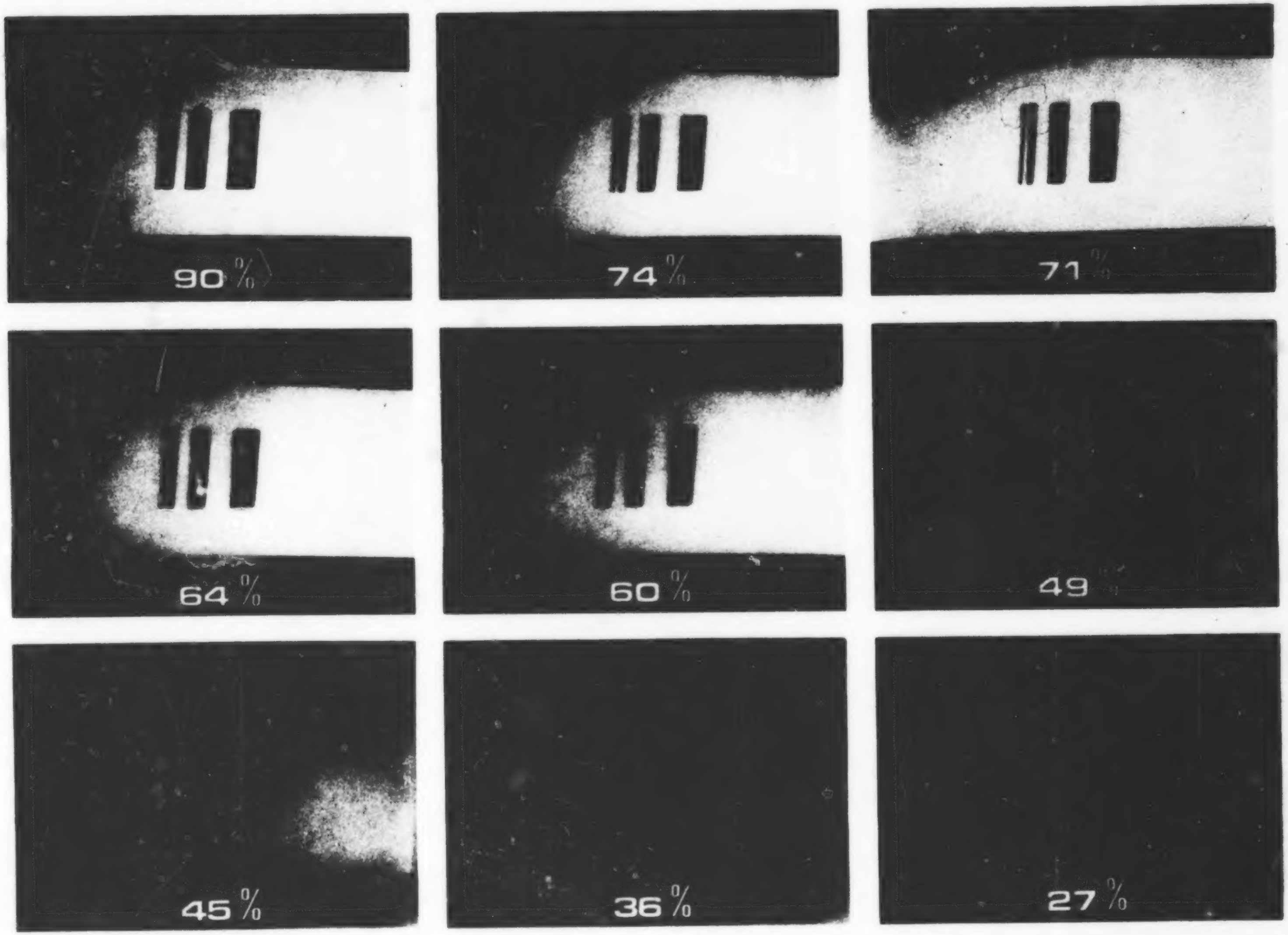
APPENDIX VI TAILING DISCHARGE: JANUARY/DECEMBER 1982 (Tailing Solids: tonnes/day)

DATE	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	6332.3	4676.8	13292.7	7797.8	3483.3	12546.4	0	3083.2	0	13127.6	0	0
2	3361.1	7212.5	11490.2	0	12367.8	12033.7	0	9917.3	0	0	0	0
3	5830.6	10125.6	12822.6	3418.6	13007.4	8468.0	3736.0	11449.9	0	0	0	0
4	9125.2	8178.6	8652.6	11017.8	12806.6	0	14241.6	11247.8	0	0	0	0
5	7291.7	8535.0	0	12301.6	12760.7	2369.7	13498.0	7270.1	0	11912.6	0	0
6	8776.3	9399.2	0	12369.9	8334.9	12616.8	14117.8	0	2218.5	13187.7	0	0
7	7961.3	11266.9	0	12750.5	0	14451.5	13675.8	0	10925.5	11121.3	0	0
8	7389.4	11219.6	0	8889.6	3694.2	14788.2	4679.0	0	12556.7	9144.4	0	0
9	5649.8	10065.6	5495.3	0	12836.9	14085.8	0	0	13286.1	0	0	0
10	3306.3	10477.2	13590.8	3141.6	12693.7	8366.1	3694.0	0	14037.6	0	0	0
11	3688.8	9911.2	13933.6	11530.4	12735.3	0	13262.5	0	0	0	0	0
12	4007.5	0	10912.7	11566.5	12646.4	3865.2	13827.8	0	0	12769.7	0	0
13	5396.1	0	0	11922.1	8869.9	12919.2	13626.4	0	0	9512.8	0	0
14	9322.1	0	9303.3	11278.7	0	12781.5	13719.3	0	9685.8	10626.7	0	0
15	10324.4	5616.5	9767.3	7319.2	3671.5	12651.2	9344.9	0	11627.4	12313.1	0	0
16	3225.2	11018.0	10331.7	0	12506.3	12149.7	0	0	12296.7	0	0	0
17	6290.7	11497.2	11029.6	2934.8	12532.7	8200.5	3790.6	0	0	0	0	0
18	11255.4	9715.2	9045.5	12270.7	12738.0	0	14445.7	0	0	0	0	0
19	7884.0	0	11015.1	14178.3	12473.8	3504.5	13315.7	0	0	10975.5	0	0
20	9846.7	0	11103.3	14531.1	7802.5	13306.5	13376.4	0	10560.5	10380.2	0	0
21	3561.1	10965.8	5871.6	14949.2	0	13321.3	12992.2	0	11875.8	11511.0	0	0
22	10824.7	11944.4	10441.9	8210.1	0	12282.8	7976.9	0	7517.7	15562.7	0	0
23	10031.3	10872.1	10335.1	0	2491.2	11844.7	0	0	12331.2	0	0	0
24	11358.0	11574.0	10924.8	2679.4	8676.8	9010.7	3168.0	0	13232.9	0	0	0
25	8346.5	12291.4	7757.2	12616.7	7654.7	0	11868.4	0	0	0	0	0
26	5140.6	0	0	12838.5	14065.2	3705.4	11957.8	0	0	13759.1	0	0
27	4888.0	3766.3	2813.1	13181.7	8803.5	13437.3	10468.1	0	0	13219.6	0	0
28	9015.9	14721.8	9685.7	13138.1	0	13811.7	10896.5	0	9705.5	12554.4	0	0
29	8675.2	-	12219.1	9229.4	3884.6	14323.7	6869.7	0	12214.9	9504.1	0	0
30	9884.4	-	12932.1	0	12555.5	9111.0	0	0	13330.0	0	0	0
31	6942.5	-	12795.1	-	12761.4	-	0	0	-	0	-	0
[illegible]	212,713.1	215,080.9	257,582.0	256,089.3	258,135.0	279,953.1	252,540.1	42,988.3	177,402.8	201,182.5		

8.0 PLATES

PLATE 1 VISIBILITY FROM PISCES IV RELATED TO PERCENT TRANSMITTANCE

Plate 1: Visibility from PISCES IV related to % Transmittance


90 %
74 %
71 %
64 %
60 %
49 %
45 %
36 %
27 %